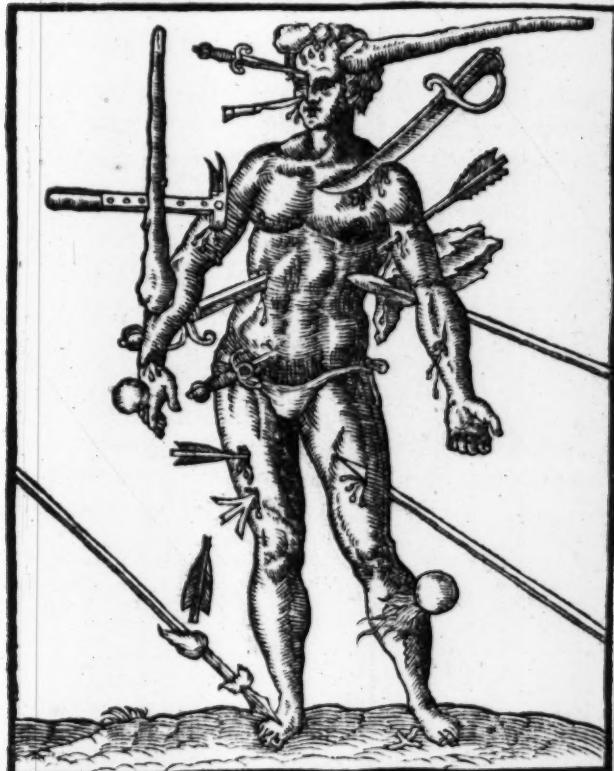


# THE Method of Curing Wounds made by Gun-shot.

Also by Arrowes and Darts, with their Accidents.

Written by AMBROSE PARIE of Laual, Counsellor and chiefe Chirurgeon to the French King.

Faithfully done into English out of the French Copie, by  
*Walter Hamond Chirurgeon.*



London printed by Isaac Laggard, and are to be sold in Barbican. 1617.





# TO THE RIGHT Honourable, Gene- rall C E C I L L.

MY LORD,

HE Common-wealth hath beeene  
compared by many (and that verie  
fitly) to a goodly and well-composed  
Edifice, which consisteth of manie  
parts, different both in use and sub-  
stance ; whereof some serue to su-  
staine the waight of the Building, as  
Pillars, and such are the Nobility :  
Others, to containe or keepe the  
same in an uniformity, as Beames ;  
and such may bee compared to the  
Magistracy : Others to defend and  
couer the frame, from the violence of outward iniurie, as Rafters and  
Postes, which may be referred to the Communitie. Now, we doe ob-  
serue, that as in all private Buildings that consisteth onely of these three  
parts, they cannot bee saide to bee perfect without other things for their  
finisshing ; whereof some are Ornaments, and serue but to beautifie ; O-  
thers for use and necessitie. Enenso, in the Publike W[e]ale, besides the  
three aforesaid principall parts, there are required other severall Ad-  
unites, which are to be esteemed and respected according to their formall  
or necessary uses. Amongst the which (Right Honourable) this follow-  
ing Treatise may hold one chiefe ranke (especially in these times) to con-  
tinue it for occasion. It receyued birth from the lamentable experience

## The Epistle Dedicatory.

of the French Ciuell Warres, by that famous and renowned Chirurgeon  
AMEROSSE PARIE, cherished by divers Kings of France: and ha-  
ving bene gratefully accepted in most part of our Christian World, it doth  
now give it selfe under your Lordshippes protection: put not into fine and  
Rheticall phrases, but into our home-spun English; such as best sui-  
teth with this rough and boisterous subiect. Concerning the worthinesse  
of the Author, or woorth of the worke, my testimony would rather de-  
tract then adde. Onely thus much, that as amongst all humane sciences  
Physicke is the most excellent; and in Physicke, Chirurgery is the most  
Authentick and ancient; so this operation is of Chirurgery the most vr-  
gent and necessary, or rather an *Abstrait* of the whole *Art of Chirur-  
gerie*.

Against Obiection, I haue your Lordshippes patronage for my defence,  
and therein I shall thinke my selfe as safe as in an *Armour of proofe*;  
knowing that it is a point of Greatnesse, as well to defend  
the weake, as to resist the  
strong.

By your Lordships truly deuoted,

Walter Hamond,  
Chirurgian.

To his louing Brethren, the  
yong Students and Apprentises in Chirur-  
gery: More especially, those that doe  
their Country seruice on the Seas.  
WALTER HAMOND  
One of their society, wisheth all encrease of  
Knowledge.

 Ouing Brethren, and my kind Com-  
panions and fellow-Trauellors, you  
haue heere presented vnto your fa-  
vourable acceptance, a Treatise of  
the cure of Wounds made by Gunne-shot: the  
worthinesse whereof, I cannot better expresse,  
then to say *Parie* wrote it; a Man experienced  
with forty yeeres practise, at that time when  
*France* did most groane vnder the burthen of  
the vnciuill *Ciuill Factions*, bred by her home-  
bred *Enemies*; wherein there was not any nota-  
ble assault, siege, nor battel fought, but *Ambrose*  
*Parie* was chieflye employed about the cure of  
wounded fouldiers, as hee himselfe testifieth in  
his owne Booke of voyages and trauels. Accept  
it therfore thankfully, as a gift from the Author,  
as it was first intended. And although it may be  
objeected, that in these peaceable times this  
*Treatise* is of little vse, and therefore vnprofita-  
ble: true it is, and with thankfulnessse to be ac-

knowledged, we liue in a calme and quiet age,  
but is therefore this so necessary and worthy a  
*Document* to be neglected? Because it hapneth  
but sildome, wee are the more vnacquainted  
with the cure: And as amonkest all the *Engines*  
that the malice of *Man* could euer inuent for  
the ruine of man, Artillery is the cruellest and  
most dangerous, because that neither *strength* or  
*policy* are able to preuent the fury therof: there-  
fore the *Method* that teacheth vs to cure those  
wounds after so easie and excellent a way as is  
here described, must needs be accounted most  
needfull and beneficiall. But howsoeuer, I doe  
not doubt, but that you my kinde friends, who  
with *Galen* trauell to benefit your Country, and  
enrich your experiances, that you (I say) doe  
know the vse and necessitie of this subiect. And  
although there are diuers extant at this time;  
yet neuerthelesse, this doeth deserue the best  
place in your good opinions, because that the  
translation heereof, was first vnderta-  
ken for your sakes onely.

Farewell.

*Walter Hamond Chirurgean.*



To his most VVorthy, and  
euer to be respected Master, *Arthur*  
*Doughton, Chirurgean.*

His seruant, Walter Hamond, humblie com-  
mendeth and committeth this Treatise of Gun-  
*shot, unto his most judicious censure.*

(\* \* \*)

## SONE T.

*Not for you were my Master (though that Name  
Shall sway me more then any other can)  
Nor out of any priuate hope, or aime,  
More then my duty, I engaged am :  
But onely for you are a Chirurgean ;  
And one whose Practise and Experience  
(Two thinges that Crownes the Artists excellencye)  
Time and the VVarres, by Sea and Land began.  
Then since you are most worthy this respect,  
I should be too Ingratefull to neglect  
Your wel-tringe judgement (though the envious grudge)  
Yet if with mildest censure you suruay  
This following Treatise, I dare boldly say,  
PARIE will have a favourable Judge.*

Your Seruant W. H.





## The Preface.



Before I enter into the Description of Wounds made by Gun-shot, and the Curation of them, it seemeth vnto mee to bee very conuenient, (to bring the Reader into an appetite, before I place him at this Table, serued forth in so many feuerall dishes, seasoned with Salt-peter) to discourse heere briefly of the first Inuentors of this so pernicious & dangerous an Instrument of Warre: And into how many kindes it hath beeene diversified and varied, euery kinde thereof hauing a name imposed theron, according to his vse and hurtful quality towards Mankind. *Polydorus Virgili* in his second Booke of the Inuentors of things, Chap. 2. saith, that *Artillery* was first inuented by an *Alleman* of base condition: and that by a sudden and vnexpected Accident. This man borne for the ruine and destruction of Mankind, hauing kept in a Morter for some certaine intention of the aforesaid Powder (which since by reason of the principall vse thereof hath beeene called *Gunpowder*) the which hee couered witha stone: it happened, that in striking of fire with his Steele and Tinder, a small sparke fell into this Morter, and presently the Powder hauing taken fire, the force thereof did beare away the stone with violence; the which did both astonish and amaze him, and also taught him

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the force of that comixture not knowne before: so that making a little hollow Instrument or Pipe of yron, and composing of the aforesaid Powder, he made tryall of that Engine, and seeing the effect fall out according to his desire, he first taught vnto the *Venetians* the vse of this

*The Venetians had the first vse of Artillery.*  
deuillish inuention, in the Warre which they had against the *Genowaines* in the yeere of our redemption 1380. in a place heretofore called the *Clodian Valley*, but now *Chioggia*.

Diuers opinions touching the time when Artillery began.  
Neuerthelesse, according to the opinion of *Petrus Massa*, in the eight Chapter of the first part of his diuers Lessons, this inuention should be more ancient, because that in the Chronicle of *Alphonsus* the eleuenth King of Castile, who Conquered the *Argezirian Iles*, It is recorded that in those warres, which was in the yeere 1343. the besieged *Moores* shot at their enemies out of certayne Mortors of yron, the seuerall reports whereof, caused an exceeding horrible sound in the ayre, equall vnto that of Thunder. The Lord *Don Pedro*, *Bishop* of Leon, in the Chronicle of King *Alphonsus* hee that Conquered Toledo, writeth, that in a battell by sea, which was betwixt the king of Tunis, and the King of Seuill, a Moore, (it being foure hundred yecres agoe and more) whose part the King *Alphonsus* fauoured: those of Tunis had in their ships certaine Engines of yron or Bombards, with the which they shot against their enemies. By this it appeares that Artillery hath beene heretofore in vse, although it neuer came to perfection till this present. The inuenter of this engine hath had but little recompence, for his name and profession are altogether vnknownen to the world, as being not vnworthy of any memory for such a wicked and damnable inuention. Howbeit *Andrew Thevet* in his *Cosmographie* speaking of the *Swenians*, a people neare about the Low-Countries, writeth out of the

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the authority of an old written Booke, that the aforesaid German had been in former time a Monke, Philosopher or Alcumist by profession, of the Countrey of Fribourg: his name *Constantine Anelzen*. Yet howsoeuer this engine was first called Bombard, by reason of the sound that it causeth: which the Latines conformably doe call Bombus. Since the time of the first inuention thereof, being before rude and imperfect: The time, <sup>What things</sup> <sup>Art,</sup> <sup>hath since bin</sup> <sup>added to the</sup> <sup>Artillery.</sup> but aboue all, the malice of men haue added much vnto it. For first of all, for the matter it selfe, it being first of yron, they haue since beene cast of Brasse or Copper, Metals more forcible, and tractable: besides lesse subiect vnto rust. Secondly, at the first they were but simply formed, and as it were but a rude masse of yron; but since they haue beene diuersified into an hundred fashions, yea vnto the mounting of them on wheeles, to the end that they might be caried with the more swiftnesse; and as it were run to the ruine and destruction of men; The first Mortor pieces not being sufficient or cruell enough to vomit forth fire and shot.

From thence haue proceeded these horrible monsters, as Cannons, doubles Cannons, Bastards, Muskets, Fowlers, and Morter Pieces, &c. These furious beasts of Culuerings, Serpentines, Basilisks, Sakers, Falcons, Falconnets, Chambers, Murderers, and infinite other kindes, all of diuers names, not onely drawne and taken from their figure and qualitie, but also from their effects and cruelty. Wherein truely they shewed themselues wise and vnderstood well the thing they vndertooke. I meane those that first imposed such names which are not onely taken from the most rauenous animals, as from Sakers, & Falcons: but also from the most dangerous enemies of Mankind, as from Serpents, Snakes, and Basilisks, to shew

Divers names  
of the Artillery:  
& whence  
they are taken

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shew, that such Engines haue no other vse, and were not inuented for any other end or intention, but onely to destry suddenly and cruelly the life of man: and that hearing them onely named, we should haue them in horrour and detestation. I omit to speake of other Pieces lesse in body and substance, but in force and cruelty more dangerous. For so much as they can take away our liues neere at hand, and may surprise vs by treason, being without all meanes of preuention: such are the Pistols, Dags, and such like, which easily may be hidden in a mans pocket. Betwixt these two kindes before spoken of, the Harquebus of Crocke holds a meane, the which cannot be shot off vnlesse it be first bound or fixed in some peece of wood: the Caliuer which cannot be discharged at the cheeke, by reason of their thicke and short stocks, but are helde against the breast. Also the common Muskets all: which haue beene inuented for the commoditie of footmen for shot and bullets. The generall word imposed by the Latines is *Sclopus*, through the imitation of the sound, & by the Italians *Sclopotterre*, by the Frenchmen, Harquebuze, a word also taken from the Italians, by reason of the touch-hole, by which the fire first entreth into the Piece: for the Italians call a hole Buzio, and it is called *Arc* from the word *Arctus* a bow, because they are vsed at this present instead of bowes formerly vsed in the time of warre. For in former time the Archers held the same Front in the battell, which the Muskettiers doe at this present. From this miserable shop and Magazin of cruelty haue spong these Mines, Countermines, Fire bals, Fire pots, burning arrowes, Lances, and Crossebowes, murderers, wilde Fires, and other hellish inuentiones, Bags, Traines, Torches, Circles, Oranges, Grenados, Crossebowes, Chaineshot, Winged shot, and suchlike. A most miserable

From whence  
the word Ar-  
quebus is ta-  
ken.

## The Preface.

rable inuention, by the which we sometimes see thousands of poore men in a Mine pressed to death, and buried quicke in the bowels of the earth; others in the heat of battell, being surprised with one of the aforesaid Engines, doth burne them so cruelly in their Armour, insomuch that the water it selfe cannot restraine and extinguish the fury of that fire. Thus are both the yron and fire armed against vs, to take away our liues through the malice of men, for the conseruation whereof they were at the first created.

Truely when I heare the engines spoken of, vsed by our Ancients, either in their warres or assaults: as their Bowes, Darts, Crossebowes; or to force and beat downe walles, as their Rammes, Horses, and such like: Me thinks I doe heare spoken of children play-games, in comparison of those now in vs. The which, to speake properly and truely, doe surpass in figure and crueltie the dreadfullest and cruellest thing that can be thought on. What can be imagined in this world to be more dreadfull and furious then the Thunder? And yet neuerthelesse, the ordinary and naturall Thunder is nothing in a maner to these infernall engines: which may easily be comprehended by comparing the effects of the one with the other. Nature would herein honour and priuilege man in this aboue all other creatures; for man onely dyeth not alwayes being strooke with Thunder: but to the contrary, other animals that are subiect to the Thunder, being touched therewith, doe die suddenly. For all Animalls being strooke with Thunder, do fall on the contrary side: Man only dieth not vnlesse he fall on the side stricken, or by not being presently turned by force from that side: but the Artillery spareth man no more then beasts, without discretion on what side souuer it hapned or strooke,

Divers Artificers of Fire.

A comparison of the Engines vsed by our Ancients, with those of ouers.

The Thunder is not so cruel as the Artillery.

How man may be preserved from Thunder.

Plin. lib. 2. cap. 54.

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Pliny lib. 2.  
cap. 55.

What things  
are preferred  
from the force  
of Thunder.

Suetonius Tib.

Artillery dri-  
ueth away  
Thunder.

on what side soever it doth reuerse them, it carieth away life and all. There are many remedies to preserue a man from the violence of Thunder. For besides those charmes wherein the ancient Romanes put much confidence, beeleeuing that thereby the force of Thunder might be coniured or diuerted. The Thunder-bolts are neuer seene to descend lower then fие foot into the earth; from thence it commeth that those that are fearefull of Thunder doe make themselues Caues or hollow Vaults in the earth, therein to retire themselues as in a place of saftie. It is said also that the Bay tree is neuer strooke with Thunder, and therefore in times past, and is at this day taken for a victorie. Wherefore the Emperour *Tiberius* fearing Thunder exceedingly aboue all other things, caused himselfe to be crowned with a wreath of Bayes, at the least sound he heared in the Ayre. I haue reade also that others for the like occasion haue made themselues Tents of the skinnes of Sea-calves, because that this Animall hath this gift in particular, neuer to be touched by Thunder. The Eagle is said also to haue this priuiledge aboue all other foules, neuer to be touched by Thunder, and therefore he is called *Jupiters* bird, as saith *Pliny lib. 2. cap. 54. & 55.* But against the Artillery, Charmes, and Incantations preuaile nothing: neither the victorious Bayes, nor the Sea Calfe, nor any thing whatsoeuer: no not an opposed Wall it selfe, of ten foot in thicknesse. Briefly, this sheweth the invincible fury of Artillery, in respect of Thunder in this. For the Thunder may be dissipated by the ringing of Bells, the sound of Basons, or by the discharging of Ordinance: For the concussion of the clouds meeting together violently, causeth the Thunder: and by the aforesaid agitation of the Ayre, they are dissipated and dispersed. But the fury and pride of Artillery will not

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not be appeased by any thing whatsoeuer. There are some Times and Regions which are exempt and freed from Thunder; for Thunder was neuer seene in the hart of Winter, nor in the midst of Summer, the which happeneth by two contrary reasons. For in Winter the Aire is very thicke, as also the cloudes; and therefore those exhalations of the earth are easily dispersed and distinguished, being of themselues but cold and glaciall. From thence it commeth to passe that the country of Scithia, and other cold countries thereabouts, as Tartary, Liuonia, Muscovia, Russia, & other neighbor countries are exempt from Thunder, as to the contrary, Egypt is seldom endamaged by Thunder, by reason of the great heat in those part. For the exhalations and vapours of the earth, which are hot and drie: are conuerted through their vehement heat into small cloudes, which haue no force, as saith *Pliny*. But as the inuention, so is the tempest and damage of Artillery, dispersed as a contagious pestilence ouer all the earth, and at all times the heauens are fencible of the complaining cryes of those that feele the furious effects thereof. Thunder for the most part hath but one blow, but one bolt, and neuer killeth but one man at a time. But Artillery at one blow will massacre an hundred men. The Thunderbolt oftentimes, as being a naturall thing, falleth as it happeneth, sometimes on a rocke, sometimes on a mountaine, sometimes on a Tower, seldome on a man. But the Artillery, being guided by the wicked dexteritie of man, coueteth nothing but man, hath quarrell to none but man, him alone hee slayeth, him alone hee chooseth among a thousand other things. The Thunderbolt doth a good space of time giue vs warning by the voyce of Thunder, the forerunner thereof; to aduertise vs of the ensuing tempest: but the Artillery it striketh in Thunder

The times  
which are  
without Thun-  
der.

Lib. 2. cap. 50.

Designe and  
end of Artille-  
ry.

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Thunder, and Thunderereth in striking, sending assoone his mortall bullet into the bowels, as he doth his sound into the eares. This is the reason why we do, & that iustly detest the Author of such a hurtfull and pernicious inuention: as to the contrary, we ought to esteeme those worthy of great praises, who either by words haue studied to reuoke all Kings and Princes from the practise of such a miserable inuention, or by effects and writings haue stvdied to ordaine and prescribe remedies to those that haue beene wounded thereby: the consideration whereof hath been a principall motiue to me to write of this matter and subiect. But before my pen shall run in this carriere, I will for the easier vnderstanding of the ensuing Treatise, which I intend to publish, place two discourses in the beginning of the Booke; to extirpate certaine ancient opinions out of the fantasies of many, which seeme vnto me to be altogether false. VVhich errors vntesse they are first convicted, it is impossible to vnderstand any thing of the esence of this euill, or to doe any profitable action in the cure therof. The first discourse is addressed vnto the Reader, condemning by manifest reasons, the errors of *Vigo*, who teacheth to cauterize and burne the wounds made by Gunshot, thinking that they did participate of a certaine *venenosity*, to the contrary approuing, that those that cure those wounds by suppuratiues, is as *salubrious* and healthfull at that of *Vigo* is cruell and dangerous. The second discourse is addressed to King *Charles* the ninth; vpon speciall command from his Maiestie: shewing that the same wounds doe not participate of any venenosity, but that their malignant effects depend wholly on the corruption of the Ayre, and the *cacochymie* or euil qualitie of the wounded bodies.

The reason  
that moued  
the Author  
to write of  
Gunshot.

The sum con-  
tained in the 1<sup>o</sup>  
discourse.

The sum con-  
tained in the 2<sup>o</sup>  
discourse.



# The first Discourse vpon *Wounds made by Gun-shot, and other fierie Engines.*

**D**N the yeere of our Lord, 1536. the victorious King *Frances* sent a great Army vnto *Piedmont* to viciual *Thurim*, and to recouer those Townes and Castles which had bene taken by the Marquesse *Du Guast*, Lieutenant Generall of the Emperor, where Mounsieur the Constable, then Great Master, was Lieutenant generall of the Army, and Mounsieur *de Monte-jan* captaine generall of the Foote-men (of whom I was then Chirurgian.) A great part of the army arriued at the *Pas of Suze*, wher we found *Pas of Suze*. the enemie keeping the passage, and had made vnto themselues certain Forts and Trenches; in such sort, that before they could be raised from thence, we entred into battell: in which conflict there was many hurt and slaine, as well on the one side as on the other. But they were inforced to quit that passage, and to recouer the Castle; which they helde not long, but were compelled to giue it vp; marching away in their shirts onely, having each of

**C** them

## The first Discourse

them a white wand in their hands : of whom, the most part went to the *Castle de Villane*, where there was about some two hundred Spaniard's. To this castle my Lord the *Constable* drew his forces, because he would make his way cleere before him. It is situate vpon a little Mountaine, which giueth great assurance to thofe within, that there can bee no Ordinance planted against it to batter it down.

They were summoned to restore it vp, or else were threatned to haue it battered in pieces; which they flatly refused : answering withal, that they were as good and faithfull seruants to the Emperour, as Mounsieur the *Constable* was to the King his Master. Their answere being vnderstoode, the same night there was mounted two great Cannons, by the force of armes with ropes and cordes, by the Switzers, where (as mis-fortune would) those can-  
nons being planted, a Gunner by indiscretion fired a barrell of Gun-pouder, wherewith hee himselfe was extreamely burned, together with tenne or twelue souldiers. Moreouer, the flame of the pou-  
der was the cause of the discouery of the Ordinance, whereby thofe of the castle the night fol-  
lowing discharged their Ordinance at that place where they discouered our cannons ; in so much, that we had many of our men hurt and slaine.

The morrow after, very early we began the bat-  
tery, and in few houres after the breach was made ; which thofe of the castle perceiving, desired a par-  
ley, but it was too late ; for in the mean time some  
of our footmen perceiving them to be astonished,  
moun-

The Castle  
de Villane  
besieged &  
taken.

mounted the Breach, and entred the castle, putting every man to the sword, except onely a certaine beautifull *Piedmonese*, which a great Lorde entertained into his seruice. The Captaine and Ancient were taken aliuie, but were presently after hanged on the gate of the Towne, to terrifie the rest of the Emperors souldiers, not to be so foole-hardy to hold such places against so great an Armie. Now the soldiers of the castle seeing our men rushing in vpon them in such great furie, made all the resistance they could to defend themselues, in killing and wounding a great number of our souldiers with their Pikes and Muskets, where the Chirurgians had a great deale of work cut out to their hands.

I was at that time but a yong Chirurgian, and The Author entereth into the matter (as yet) had seene the curation of any Woundes made by Gunne-shot. True it is, that I had read *John de Vigo* his first booke of woundes in generall, chap.8. where he saith, That those woundes made by fiery Engines, do participate of venenosity, because of the Pouder; and for their curation, hee commandeth to canterize them with the Oyle of Elders mixed with a little Treacle: yet neverthelesse, because I would not be deceived, before I would vse of the aforesaid boyling oyle, knowing that it brought with it extreame paine to the Patient, I obserued the method of the other Chirurgians in the first dressing of such wounds; which was by the application and infusion of the aforesaid

## The first Discourse

A remedie  
found by  
accident.

Oyle as hot as possibly they could suffer it, vwith Tents and Setons: wherefore, I became emboldned to do as they did. But in the end my oyle fayled mee, so that I was constrained to vse in steede thereof, a digestiue made of the yolke of an Egge, Oyle of Roses and Terebinth. The night following, I could hardly sleepe at mine ease, fearing lest that for want of cauterizing, I should find my Patients on whom I had not vsed of the aforesayde Oyle, dead and impoysoned; which made mee to rise earely in the morning to visit them: where beyond my expectation, I found those on whom I had vsed the digestiue Medicine, to feele but little paine, and their wounds without inflammation or tumor, having rested well all that night. The rest, on whom the aforesaide Oyle was applyed, I found them inclining to Feauers, with great pain, tumor, and inflammation about their Woundes: then I resolued with my selfe, neuer to burn so cruelly the wounded Patients by Gunshot any more.

When we entred *Thurin*, I was told of a Chirurgian who was exceeding famous, especially for his curing wounds made by Gun-shot, with whom I found the meanes to acquaint my selfe: yet it was neere two yeeres and a halfe before hee would acquaint me with his Medicine which hee called his Balme. In the meane time, Mounsieur the Marshall of Monte-jan, who was Lieutenant Generall of the King in *Piedmons* died: then I tolde this Chirurgian, that I had a desire to returne to *Paris*, withall requesting him, that he would perform his pro-

promise; which was, to giue me the receipt of his Balme, which he willingly did, seeing that I was to leaue that country. He sent me to fetch him two yong whelpes, one pound of earth-wormes, two pounds of the oyle of Lillies, six ounces of the Terebinth of Venice, and one ounce of Aqua-vitæ: and in my presence he boiled the whelpes aliuie in the saide Oyle, vntill the flesh departed from the bones. Afterward, he tooke the wormes (hauing before killed and purified them in white wine, to purge themselues of the earth which they haue alwayes in their bodies:) being so prepared, he boyled them also in the said Oyle till they became dry, this he strained thorough a Napkin, without anie great expression; that done, hee added thereto the Terebinth, and lastly, the Aqua-vitæ, and called God to witnesse, that this was his Balme which he vsed in all wounds made by Gun-shot, and in oþers which required suppuration; withall praying me not to divulge his secret.

From thence I returned to *Paris*, where shortly after Mounseur *Silvius* Lecturer of the King in Physeicke, a man greatly esteemed among learned me, requested me one day to dine with him, which I did willingly; where hee asked me many Questions, and among the rest, of the essence of wounds made by Gun-shot, and of the combustions made by Gun-pouder. Whereupon, I presently proued vnto him, that the powder was not any thing venomous at all; because that no Simple that entreth therein is any way venomous, much lesse the com- Gunpowder  
not venomous.

## The first Discourse of

position. Also I haue seene by experience, that some souldiers being hurr, will take of the sayde powder in Wine, saying; That powder so taken, doth preserue the body from the ensuing accidentes, the which I approue not. Also others hauing vlcers on their bodies, do commonly vse of the saide powder dry, and heale them without any danger at all. And as for the Bullets they cannot containe any such heate that they should haue the faculty of burning: for a bullet beeing shot against a stone-wall, it may presently be held in the naked hande, although the collission made against the Stones, shold in reason heate it the more: & as for combustions or burnings made by Gun-powder, I neuer found any particular accident in it, whereby the cure ought to bee diuersified from the cure of other combustions. Whereupon, I related this

Wounds  
made by  
gunshot are  
without  
combustion

Historie.

A certayne boy of the Kitchin, of Moun-sieur the Marshall de Monte-jan, fell into a Caldron full of Oyle almost boylng hotte; to dresse whom being sent for, I went presently to an Apothecarie, demanding of him such cooling Medicines which are commonly applied vnto burnings: an ancient country-woman being by, hearing mee speake of this burning, counselled me to apply for the first dressing (to preuent the rising of Pustules or bladders) of raw Onions, bruised with a little salt. I demanded of this woman whether shee had euer made experiance of that Medicine before: she

<sup>\*yea Sir, by</sup> presently sware vnto me in her language, *Si messe,*  
<sup>the Faith of</sup> *à la se de dé;* which did incite mee to make experiance  
<sup>God.</sup>

ence hereof on this Scullion of the kitchin, where truely I found the morrow after, that in those parts where the Onions had touched, to bee altogether free from vessickes or blisters, and the other parts where the Onions were not applied, to bee much blistered.

Not long after, a certayne Dutch-man, one of the Guard of the saide Lord de Monte-jan, hauing Historie. drunke hard, by indiscretion set his Flaske afire, which caused a great disaster both to his hands and face; and being called to dresse him, I applyed of the saide Onions on the one halfe of his face; and on the other side, of other common remedies. At the second dressing, I founde that part vwhere I had applyed the Onions to be altogether without blisters or any excoriation, and the other altogether blistered: then I first purposed to write of the effect of the saide Onions.

Moreouer, I tolde vnto the saide *Sylvius*, that for the better extraction of bulletts which are hid-  
How the pa-  
tient ought  
to be situat-  
e in the ex-  
traction of  
Bulletts.  
den in anie part of the bodie, it is requisite the pa-  
tient should be placed in the same situation that he  
was in at that time when he was wounded. Manie  
other things I discouered vnto him, which are  
contained in this Booke following. My discourse  
ended, he prayed mee verie earnestly that I would  
publish it by writing; to the end, that that false o-  
pinion of *Vigo* might be altogether abolisched: the  
which I willingly consented vnto, and caused manie  
instruments to be cut, such as had not bene di-  
vulged, for the extraction of bulletts, & other vn-  
natural

*The first Discourse of*

naturall things out of the bodie. And it was first imprinted in the yeare 1545. and well receiued, which caused me to renew it againe, and publish it the second time, in the yeare 1552. and lastly, in the yeare 1564. where I haue enriched it with manie other things, because I haue since followed the warres, haue bene in many battels, and besieged Townes, as in *Metz* and *Hedin*. Also I haue beene entertained into the seruice of five Kings, where I haue alwayes discoursed with the most excellent Physitians & Chirurgians of those times, to learne and discouer if there were any other Method or way to cure those wounds made by Gunue-shot; whereof the most part (especially those that haue followed the warres, and are guided by reason and experience) are of my opinion, which is to vse Suppuratiues in the beginning, and not boyling oyles. And I did protest moreouer to the said *syllabus*, that I haue found those woundes as easie to cure (being in fleshy parts) as all other great contused woundes are. But where the bullet meeteth with the bones and neruous parts, it teareth, dilacerateth, breaketh, and shiuereh in peeces, not only where it toucheth, but also the circumiacent parts, without any mercy; causing great accidents which happen specialy in the iounctures or ioynts, and in bodies of euill constitution, and in times subiect to corruption; that is to say, where the ayre is hot and moist, then is the cure most difficult, & oftentimes impossible; not only of wounds made by Gun-shot, but also of those which are made by other.

The cause  
that maketh  
woundes by  
Gunne-shot  
hard to bee  
cured.

other instruments, yea, though they were but in fleshy parts.

Therefore, the aforesaide accidents doe not proeceede from the venenosity which is in the powder, or by the combustion or burning of the Bullet. For proofe whereof, I will alledge this History. obseruation which I haue experimented not long since on the person of the Earle of *Courdon*, Lord of *Achindon*, a Scottishman, whome I cured by the commandement of the *Queene-mother*, who was hurt with the shot of a Pistoll cleane through both the Thighes, without fracture of the bones; he standing so neere the mouth of the Pistoll, that the fire tooke hold of his breeches; neuerthelesse, hee was perfectly cured in two and thirty dayes, without a Feauer or any other euill accident. I drest him at Sir *John de Latran*, in the house of the Arch-byshoppe of *Glasco*, then Ambassador for Scotland, who came euerie day to see him drest. Moreouer for testimony, I could produce Moun-*sieur Brigard*, Doctor Regent in the Facultie of Physicke, who was an assistant with me: together with *James Guillemean Chirurgian* to the King, & sworne at *Paris*, who was with mee vntill his perfect curation. The same likewise Moun-*sieur Hau-  
tin*, Doctor Regent in the faculty of Physicke can testifie, who sometimes came to see him. Also *Giles Buzer*, Scotchman and Chirurgian, euerie of them meruailing how he became so soone cured without the application of hot and sharp Medicines. Now the reasons wherfore I haue made

D

this

*The second Discourse*

this little Discourse, is to demonstrate that it is aboue thirty yeares ago, since I first found out this manner of curing wounds made by Gunne-shot, without the vse of boyling Oyles, or anie other sharpe or burning Medicines, vnlesse I was constrain'd to vse them for such accidents which happened in *Cochymed* bodies, or through the euill disposition and malignancie of the ayre, as I will

shew more amply in this Discourse fol-

lowing, which I made vnto the

deceased King, after the

taking of *Roan*.

**The**





Another Discourse, be-  
*ing an Answer unto a certaine De-  
mand propounded by the victo-  
rious Prince Charles the ninth, as touching  
the quality and Essence of Woundes  
made by Gun-shot at his Majesties returne  
from the sledge, and taking  
of the Towne of  
Roan.*

Bone day pleased your Majesty, Occasion of  
this dis-  
course. together with the Queene Mo-  
ther, my Lorde the Prince of *La  
Roche-sur Ton*, and many other  
Princes and great Lords, to de-  
mand of me how it came to passe  
that in these last Warres, the most part of such  
Gentlemen and Souldiers, who were wounded  
by Gun-shot, and other instruments of warre di-  
ed, or were very hardly recovered from their di-  
seases, although the wounds which they receiued  
were but of small appearance, and the Chirurgi-  
ans which were employed for their cures, did per-  
forne their duties according to Art; I have bene-

## *The second Discourse*

the bolder to publish this discourse, to satisfie in some measure the duty of my Ar<sup>t</sup>, and that my profession might not be spoilt with the least dis-honor, and that your Maiesty might vnderstand the reasons which might haue beene the cause of the death of so many valiant men; the most part of whom I haue seene (to my great greefe) to fi-nish their daies pittifullly, without any possibility in mee, or any other more experienced then my selfe to give them remedy.

Insinuation  
into the  
good accep-  
tance of  
those who  
are of the  
contrary o-  
pinion.

I know that this following discourse will asto-nish some, who reposing themselues vppon their owne particular opinions, and not examining the matter deepeley, will finde the first front of my dis-pputation very strange, because that the contrarie hath beene so long imprinted in their fantasies. For I do hold, that the cause of the malignancy of wounds by Gun-shot, not to proceed from anie poison or venomous quality in the powder (as they imagine) or from the bullet it selfe, beeing rubbed or infused in any venomous mixture. Ne-uerthelesse, if their meekenesse and patience will extend so far, as first to waigh the motiues which first mooued me to vndertake this subiect, which was a zeal of the publike good; towards the which the Law of Nature bindeth mee to shew the vr-most of my power in such things which the singular prouidence of God hath reuealed vnto mee. And secondly, that they will examine with iudge-ment the reasons which I shall vse in this present Treatise, then I shall bee sure, they will both ac-  
cept

cept my labours thankefully, and free it from all future calumny ; otherwise they will shew themselves to be so euill affectioned towards me , as if I should present my selfe before them , enriched with all the treasures of the ancient Philosophers , and they should place mee in the number of the poorest and ignorantest men in the worlde . To preuent therefore all the argument's of venome and poisoning, which the aduersaries here aboue mentioned may alledge, I will make it plaine vnto your Maiesy, that such as are wounded by gunshot, I say the malignancie of such wounds not to proceed from the venom of the Powder, being of it selfe simply considered : and much lesse from the combustion or cauterization which the Bullet so heated by the fire of the powder can make in those parts, which it rendeth & dilacerateth thorough the violence thereof : although nevertheless some do strie to maintaine; alledging for all reasons, that a certaine Tower full of powder hath heeretofore bene scene ruined in an instant, onely by the meanes of a Cannon shotte . Also of a Thatcht house set on fire with a Musker shot . Moreover, because that such woundes which are made by Gun-shot, we commonly beholde their Orifices and other circumiacent parts so black, as if an actuall Cauter had passed theron . As also the fall of a certaine escarre, as they say: At which arguments are so ill framed, that they deserue no authority being built on so slender a foundation : much lesse that the resolution of your demand

The Author  
propogeth  
two points,  
which he  
wold refute.  
viz. the poy-  
son of the  
powder, and  
the Fire of  
the Bullet.

## The second Discourse

should be taken from them, as I trust to give you plainly to vnderstand in the disputation following. The which (after I had seene a great number of those woundes, and diligently obserued them, handling them according to the Method) I haue collected from the ancient Philosophers, Physitians, and Chirurgians to present vnto your Maiesty, and to with-draw your minde from the admiration of the lamentable deaths of so manie braue Gentlemen and Soldiers.

Now to enter into the matter proposed, and to answer the arguments before alledged, we are first to examine whether there be any poison inclosed in the powder, or no : And if there be, whether it may infect by meanes of the pretended poysone thereof. Which that it may appeare plainly, wee must search into the composition of the said powder ; considering that it is not of substance simple, but compound : and so by examining the nature of such Simples which enter into the composition thereof ; I meane their qualities, effects, and operations, wee shall the sooner attaine to the scope and intention pretended.

The composition of the powder. As for the Simples, it is a most assured thing that there are but three in al which make the composition thereof, that is to say, Coales of Willow or Birch, Sulphure, and Salt-peter, & sometimes Aqua-vitæ : the which ingredients severally considered, are altogether exempt & free from poison, or any venomous quality. And first for the coales, there is not any thing considerable in them,

them, vnflesse it be a drying quality, of subtle substance, by meanes whereof it is apt to take fire, euen as a Linnen cloth burnt into Tinder doth the sparkes that fall from a Flint stone. Sulphure is hot and dry, neuerthelesse not excessiue, and of a more oyly and viscuous substance, yet not so easie to inflame as coales, although it doth retaine the fire more forcibly when it is once inflamed, & is very hardly extinguished. As for the Salt-peter, it is such, that many make vse thereof insteede of salt. Now let vs examine whether there be any venenosity in the nature of these Simples, namely, in that of Sulphure, which is the most suspected. *Dioscorides* in his fist Booke, chap. 37. prescribeth it to be taken in an Egge, in the astmaticke passion, coughes, and to such which spit matter, and those that haue the Iaudise. And *Galen* in the 9. Book of his Simples, Cap. 36. ordaineth it as a topicall remedy, vnto such who are bitten with venomous beasts; and in all malignant practises or itchings; as for the Aquavitæ, it is a thing so subtle, that it will euaporate if it be set in the aire, besides it is vsed by most Chirurgians inwardlie in drinke, and outwardly in embrocations as a most singular Medicines. These thinges considered, makes me to affirme, that the whole composition of pouder is altogether free from venome or poison, seeing that the ingredients are altogether cleere from the least touch in that kinde. Moreover, I haue obserued it to bee the practise of the Hollanders being wounded by Gun-shot, to dissolve

*The second Discourse*

solve two charges of pouder in wine, and to drink it off, hoping by that meanes to be freed from all future accidents which might happen vnto theyr wounds (although I do not approue thereof, because it is a most insuffisient remedy.) Also, such Vlcers which are made through the combustion of powder, are of no other nature then those that are made by fire, or scalding water. But wherefore should I alledge any forraigne example? Do we not see among our owne souldiers, I doe not know on what occasion, but onely to shew themselues braue fellowes, to emptie their charges of powder into their cups, and drinke it without any inconuenience at all; and others likewise beeing hurt on any part of their bodies, will apply of the same on their Vlcers to dry them, and finde much profit by it. As for those which do affirme that it is not in the powder, but the Bullet, which being subtilly pierced in many places, or filled vp with venome, or steeped, rubbed, or mixed with anie poyson, causeth the aforesaide dangerous accidents? To such I answer without further trouble, that the fire set to the powder, is suffisient to putifie the poyson of the Bullet, if any there were, the which canot be done by impoysoned swords, Pikes, Arrowes, and such like, because they passe not through the action of the fire. Briefly to confirme my opinion to be true, there is not anie one of those that were in your Majesties Campe at Rass, that doeth not assuredly know, that those Bullets which were shot against those of the town

Refutation  
of those that  
affirme the  
Bullet to be  
impoisoned.

to

to be altogether free from poison. Neuerthelesse, the besieged Townesmen affirmed, that all those Bullets were poysoned. Allo the Souldiours of your Maiesties Campe had the same opinion of such Bullets which were shot at them out of the Towne, that they were all impoysoned by them ; rather beleeveng and iudging of the quality of the wounds by their ill successe ; then by the Causes whereby they were made.

True it is, that as in Physicke according to the sentence of *Hippocrates* in the *Epidemias*, as *Galen* noteth on the 20. sentence, and the 21. of the 3. Sect. of the 3. Book, all diseases are cald Pestilentiall and venomous, being excited from common and generall causes of what kinde soeuer they be, and such kill many persons : so in the like manner, we may cal such wounds which are made by gunshot venomous, which are more difficult to heale then others; not because they do participate of any venosity, but from some generall cause depending either from the Cacochimie of the body, putrifaction of the aire, or the corruption of the victuals, whereby those Ulcers are brought to be more malignant *Cacoëthes*, and rebellious to all Medicines.

To affirme that it is only the combustion of the Bullet which causeth the aforesайд danger, I can- Refutation of those that not conceive their reasons, seeing that the Bullet the Bullet caused combustion. is for the most part made but of Lead, and therefore vnable to indure any great heate, without being altogether dissolved, the which we neverthe-

lesse see to passe through a coate Armour, and to penetrate the body through and through, and yet to remaine whole. Moreouer, we doe obserue, that if a Bullet be shot against a stone, or against any solid matter, it may in the same instant bee handled of vs in our hands, without feeling anie notable heate, although the violent striking and collition made against the stone, should in reason encrease the heate, if any there were. And which is more, if a Bullet be shot against a bagge full of powder, the fire will not endanger it. This I dare bee bolde to say and affirme moreouer, that if a quantity of powder should take fire being kepte in a Tower, or any other place, by the meanes of a Bullet shot, it was not the heate of the Bullet, but rather the violent striking of the Bullet against the stones of the saide Tower, which might cause sparkes of fire to fall among the powder, euен as the smiting of a steele against a flint stone. The like we may iudge of such Thatcht houses which haue bene set on fire by a Musket shot, to haue rather proceeded from some wad either of Tow or Paper, ram'd in with the powder, and so fired with it. But that which doth most confirme me in the assurance of my opinion, is, that if a bal of wax be shot out of a Musker, it feeleth no force of fire at all, for then it would melt; neverthelesse it wil pierce an inch boord. An argument of sufficient weight to proue that the Bullet cannot be so extremely heated by the force of the Powder, that they should cauterize and burne, as many haue esteemed.

An example  
of a ball of  
wax.

steemed. And as for that blacknesse, which is ordinarily found to bee about the Orifices of such wounds, and other adiacent parts. I say that this accident doeth not proceede from any qualitie of fire accompanying the Bullet, but because of the great contusion which it maketh. For it cannot enter into the body otherwise then by an extreme and incredible force, because it is of a rounde figure. Vpon this point, if the wounded persons themselues be demanded, I beleue they will testifie the truth of my saying; because they are no sooner strooke with the bullet, but they feel in the same instant, as if a club or some heauie burthen were fallen vpon the offended part, in the which they feele a heauy paine, with a benummed stupification of the part; which dissipateth and sometimes extinguisheth the naturall heate, together with the spirits contained therein: from whence there followeth oftentimes a Gangrene and mortification of the part, yea sometimes of the whole body. And as for the Escarre which they affirme there to be, and fall away as they say, they doe abuse themselues: for it is onely some certain portion of the Membranes and contused flesh, dilacerated by the Bullet, which becommeth corrupted, and so separateth it selfe from the sound parts which are greatly contused.

Although that these Reasons do make it manifest enough, that there is no venomous quality in the powder, nor action of fire carried with the Bullet, neuerthelesse many building their opini-

ons vpon naturall Philosophy, doe maintaine the contrary, affirmin that Cannon shot is like vnto the claps of Thunder which burst soorth of the clouds in the middle Region of the aire, and so fall violently on the earth. From the which similitude they would infer and conclude, that there is both fire, and a venomous quality in the Bullet, as it proceedeth out of the mouth of the Cannon. I know(I thanke God) that Thunder being engendered from a grosse and viscuous exhalation, by meanes of vapour conioyned with it, doth never breake soorth of the clouds to penetrate heere below, but it draweth and bringeth immedietly with it a certaine fire, sometimes more subtle, sometimes more grosse, according to the diuersitie of the matter, whereof the exhalation is composed.

Seneca. 3. kindes of Thunders. For *Seneca* writeth in the second booke of his naturall questions, chapter 49. that there are three kinds of Thunders all differing the one from the other, according to the quantity and manner of their inflammation. The first, by reason of the matter thereof, it being most thinne and subtle, it doth pierce and penetrate suddenly the Obiectes which it toucheth. The second kinde, by reason of the violence thereof, breaketh and dissipateth the same things because that the matter thereof is more violent, and compact as a Tempest. The third sort being composed of a more earthy matter, burneth with manifest tokens of the heat therof. I also know, that the Thunder is of nature Pe-  
stilentiall and fætide, because of the grosse and sli-  
mic

mic matter thereof; which being burned, leaueth behinde it such a stinking sauour, that all animals do so much auoide it, that if it do happen to fall into their dens, or other places of haunt, they wil vtterly abandon and forsake such places; so much do they hate the infectious stinke of that poysone.

The same is noted by *Olaus Magnus*, in his *Sentinall History*, that in certaine places where Thunder hath falne, presently after the fall thereof, the fields haue beeene found afterwards to bee couered and strewed ouer with sulphure, neuerthelesse vnprofitable, and almost extinguished.

For all these reasons, I must not confesse that the blowes of Gun-shot are accompanied with poyson and fire, as the claps of Thunder are. For al-  
Answer to the contrary Reasons.  
though they doe agree the one with the other, in some similitude, it is not therefore in theyr substance and matter, but rather in the maner which they haue to batter, teare, and dissipate the obiects which they meeet with, that is to say, the claps of Thunder through the force of fire; & of the bolt or stone sometimes engendred therein: and the blowes of Gun-shot by the meanes of the aire forced away by impetuosity, and so condueting the Bullet causeth the like disaster. What if I should be conuicted by stronger arguments, so that I were inforeed to anouch that Thunder and the Cannon to be of like substance; yet I shoulde never be forced to say, that the shot of Cannons and Muskies do participate of a fiery quality. *Pliny* saith in the second Book of his History, and the

## The Second Discourse

¶ 1. chapter, that among Thunder one kinde is composed of a meruaulous dry matter, dissipating all such thinges it meeteth withall, neuerthelesse without any signe of burning: others, of a more humid nature, which in like manner burneth not: but blacketh and discoloureth much more then the first. And others are composed of a very cleere and subtle matter: the nature wherof is most meruaulous, forsoomuch that it is not to bee doubted (as *Seneas* hath well saide) that there is therein a certaine divine vertue: and it is in melting Golde, or Siluer in a mans purse, the purse it selfe not being so much as touched therewith. Also in melting a sworde, the scabberd thereof remayning whole. Also in dissolving into droppes the Iron head of a Pike, without burning, or so much as heating the woode. In shedding the wine out of a vessell, without burning or breaking of the caske. According to the aforesaid testimony I can assure you, and that without any preiudice, that those Thunders which onely breake and dissipate without any burning; and such which leave effects ful of great admiration, not to be much vnlke in substance to the Cannon shot, and not those which carry immediately with them the action of fire. To proue my saying, this one example shall suffice. A certaine souldier received a wound in his Thigh with a Musket shot, from when I extracted a bullet; the which being wrapped in the Taffatice of his breeches, made a very deepe wound. Neuerthelesse I drew it forth of the wound with the same

Example.

A meruaulous effect  
of Thunder.

same Taffatie, it being without any signe of burning.

And which is more, I haue seen many men, who not being shot, nor any thing touched therewith, vnlesse it were in their apparrell onely, haue receiued such an astonishment by a Cannon shot that onely past neere them, that their members thereby haue become blacke and liuid; and shortly after haue falne into a Gangrene and mortification, whereof in the end they haue died.

These effects are like vnto those of the thunder before spoken of. Neuerthelesse, there is not in them any fire or poison: which maketh mee conclude, that there is no poison in the common and ordinary pouder. Seeing therefore that this disaster was common to all those which were hurt in these last warres, and yet neither by fire or poyon that so many valiant men died. To what cause may we impute this euill? I am so confident of the true cause my Liege, that I hope presently to make your Maiesty vnderstand the same, to the end that your demand may be fully satisfied.

Those which haue consumed their age and studie in the secrets of naturall Philosophie, haue left vs this among other things for authentick and approved of all times. Which is, that the Elements do symbolize in such sorte the one with the other, that they doe sometimes transforme and change themselues the one into the other in such sorte, that not onely their first qualities, which are heat, coldnesse, driesse and moisture: but also theyr

sub-

*The second Discourse*

substances are chaunged by rarification or condensation of themselues ; so the fire doth conuert it selfe ordinarily into aire, the aire into water, the water into earth; and contrarywise the earth into water, the water into aire, and the aire into fire. The which we may dayly behold and proue it by those bellowes of Copper which the Dutchman brings vs, being composed in the form of a Boll, the which being filled with water, and having but one hole in the midst of the Sphericall forme thereof, receiueth the transmutation of the water within it into aire through the action of the Fire, neere vnto the which the Boll must be placed; and so thrusteth the aire forth of it with violence, making a continuall noise or sound vntill all the ayre be gone forth of it. The like may bee knowne by Egges or Chestnuts : for either of them being put into the fire before they are crackt, or the Rindes broken, presently the watery humidity contained in them doth conuert it selfe into ayre, thorough the action of the fire : and the ayre in making his passage bursteth the shell, beecause it occupyeth more place being in the forme of aire, into the which it was chaunged by rarification caused by the fire, then it did vnder the forme of water; and not finding passage is constrained to make one by violence, according to the proposition helde for most certaine among all Physitians ; that is to say, of that one part of Earth is made tenne of water : and of one part of water is made ten of aire, as of one part of aire ten offire. I do say and affirme so much

much of the matters contained in the saide Gunpowder, which by meanes of the fire is conuerted into a great quantity of aire; the which because it cannot be contained in the place where the matter was before the transmutation thereof, is compelled to yssue forth with an incredible violence: by meanes wherof, the Bullet breaketh, shiuereth and rendeth all that euer it meeteth with, yet doth not the fire accompany it. Euen as we see a Bow, or a Sling shoothe forth an arrow or stone, without any aire at all. But the bullet driueth before it such a subtle winde, and so swiftly agitated that sometimes the very wind it selfe without the action of the bullet causereth strange and wonderfull effects. For sometimes I haue known it make a fracture in the bones without any diuision of the flesh. And heerin it may be compared as we

saide before vnto the effect of Thunder: euen so

The effect  
of Artillerie  
like to the  
Thunder.

Mines and Vaults of the earth, and being conuerted into aire through the action of the fire set vnto it, how it doth ruinate and reuise huge masses of earth almost as bigge as Mountaines. Also in this yeare, in your Maiesties Town of *Paris*, a certaine quantity of powder, but newly made in the *Arcenall*, by taking fire caused such a great Tempest, that the whole Town shooke at it: for with an horrible fury it leuelled with the Earth all the houses neere vnto that place, and discouered and battered downe the windowes of all those houses that stood within the fury of it. And to bee briefe

*The second Discourse*

(even as a clap of Thunder) it did reverse here & there many men halfe slaine; taking away from some their eyes, from others their hearing, and left others no lesse torn and mangled in their members, then if foure horses had drawne them in peeces: and all this by the only agitation of the aire, into which substance the powder was conuerted. The which, according to the quantity and quality of the matter thereof, and according to his motion, either more or lesse violent, hath caused so many won'rfull accidents in our Prouinces; altogether like vnto those which are caused through the inclosing of winds in the bowels and cauities of the earth not being perspirable. The which strueng to haue vent, bloweth with such a strong and violent agitation, that they make the earth to tremble and quake thereat: thereby debollishing Cities, and ruining buildinges, and transporting them from one place to another. As the Townes of *Megara* & *Egina*, anciently much celebrated in the Countrey of Greece, perishing by Earth-quakes can witnes vnto vs.

I omit to discouer (as but little serving to our purpose) how the wind inclosed in the Entrails of the Earth, maketh a noise of diuers sounds, & very strange according to the diuers forms of the conduits and passages through the which it yssueth by, even after the manner of Musicaull Instruments; the which being large, do giue a great and base sound, and being narrow do make high and sharpe notes, and being crooked or replied make

di-

diuers sounds ; as wee see by experience in the Huntsmans horne, and in Trumpets, the which also being moystened with water, do make a hollow gurgulynge sound.

In like manner these noises, murmurings, and clamors are sundry wayes diuertised, according to the places whence they proceede ; in such sort, that sometimes hath bene hard a clamorous crie, representing (as it seemed) the assault of a Citty, the cries and lowings of Buls, or the neighing of Horses, roaring of Lyons, sound of Trumpets, reports of Artillery & many other dreadful things ; yea sometimes humane voices. As it is reported by one, who had heard a voice (as it were) of a woman a beating, which made (as he imagined) such a wofull and greevous lamentation, where-  
Diuers  
souds issu-  
ing out of  
the veins of  
the earth.  
by he became so greatly affrighted, that hee had scarce breath sufficient to make this report. But when he had well vnderstode the cause of this plaintive voice, he was presently deliuered from that fear, which otherwise might haue killed him.

But some perhaps will say, that these things haue alwayes bene, and no lesse ordinarie in the times past, then they are at this present : and therfore it is a great folly in mee to alledge them, for efficient causes of the death of so many men. The which imputation I should freely confessse, if I should present them for such : but seeing that by them I would o nely paralel and compare the impetuosity of Artillery with that of Thunder, and

## The second Discourse

the motions of the earth ; which beeing so , it will appear that it maketh nothing against my first intention , as I hope to demonstrate cleerely , that I am slandered without a cause , if you please to give care to the deduction following . In the which , I will plainly and briefly describe the true causes of the late mortallity which happened among your Highnesse Soldiers .

The true ex-  
plicatio n of  
the questiō . Amongest the things necessary for our lives , there is nothing that can more alter our bodyes then the Aire ; the which continually ( willing or vnwilling ) we inspire by those Conduites which Nature hath apointed for that end ; as the mouth , the nose , and generally through all the pores of the skin and Arteries therein infixed , whether we eate , drinke , watch , or sleepe , or doe any other action , whether Naturall , Vitall , or Animal . From thence it commeth , that the aire inspired into the Lungs , the Hart , and the Braine , and vniversally in all the parts of the body to refresh and in some measure to nourish the same , is the cause that a man cannot liue one minute without inspiration ; according to the which wonderfull benefite , the Hyp. in the excellent Physitian *Hippocrates* hath pronounced Preface of his Prognost and that truly , that the Aire hath a kinde of Divinity in it ; because that in breathing and blowing ouer all parts of the world vniversally , it doth circumuolue all things therein contained ; nourishing them myraculously , strengthning them firmly , and maintaining them in an amiable Vnion , altogether symbolizing with the stars & Planets ; into

into the which the diuine prouidence is infused ; which changeth the aire at his pleasure, & giueth it power not onely ouer the mutation of times & seasons, but also of the alteration of naturall bodies. And therefore the Philosophers and Physicians haue expreſly commanded, that wee ſhould haue a principall regarde vnto the ſituation and motions of the heauenly bodies, and conſtitutions of the aire, when the preſeruation of health, or the curation of diſeases are in queſtion : but especially the course and mutation of the Aire is of great power, as we may eaſily iudge by the 4. ſeasons of the yeare. For the Aire being hot and dry in Somtner, our bodies in like manner doeth thereby become heated and dried : and in winter the humidity and coldneſſe of the aire doeth like-  
wife ſil our bodies with the ſame quailties; in ſuch order neuertheleſſe, and in ſo good a diſpoſition of nature, that althoſh our tempeſtures ſeeme to be changed according to the fourie ſeasons of the yeere, wee neuertheleſſe receyue no harme thereby, iſ thoſe times do keepe their ſeasons and quailties free from exceſſe. But to the contrarie, iſ the ſeasons be ſo peruerted that the Sommer is cold, and the Winter hot, and the other ſeasons in the like diſtemperaſure, this diſcord bringeth with it a great perturbation both in our bodyes, and in our ſpirits, conſtrained neuertheleſſe to receiue the danger, by reaſon that the cauſes are ex- treame, and do on euery ſide encompaſſe vs; ſo that we are conſtrained to lodge it in vs by thoſe

Hyp. in the  
beginning  
of his booke  
*de Aere locu-  
et aqua.*

## The second Discourse

The alienation of sea-  
sons cause end; as partly to expell the superfluous excre-  
ments of our nourishment, and partly to receiue  
the saide externall causes, which is the ayre or  
winde, producing in vs diuers effects, according  
to those parts of the world from whence they do  
proceed. For it being so that the Southerly winds  
are hot and moyst; that of the North cold & drie;  
the Easterly winds for the most part are clere and  
pure; and the Westerly cloudy, and subiect vnto  
raime; yet it is a most assured thing, that the Ayre  
which we do inspire continually, holdeth in all,  
and through all the quality that is most predomi-  
nant. And therefore we shold of necessitie consi-  
der in all diseases, and the inconueniences which  
happen therein, the quality of the windes and the  
power which they haue ouer our bodies; as *Hip-*  
*ocrates* hath learnedly left vs by writing, in the 3.  
Booke of his Aphorismes, Chap. 5. and 17. say-  
ing, That our bodies do receive a great alteration  
through the vissitude of the times and seasons of  
the yeere. As by the South-wind our bodies are  
subiect to all diseases, because that moisture is  
their primitiue cause: it also weakeneth our natu-  
rall heate, the which in the opposite case is much  
fortified through a cold and dry wind, which also  
maketh our spirits more quicke and subtil. The  
verity of which sentence, the inhabitantes of the  
territory of *Narbonne* doe too much experiment  
to their damage. For being themselves between  
the lustiest and healthfullest people of all *France*;  
yet

yet neuerthelesse they themselues are very sickly for the most part, their bodies leane, their countenances sad and heauy; their faces tawny, or of an Olive colour, do manifestly shew the same. Also among other diseases, they are almost all subiect to the white Leprosie; and the least Ulcers which they haue, which wee make no account of at *Poitiers* or *Paris*, do ordinarily continue with them a whole yeere together. Not for any other cause, as they themselues confess, and as al strangers know that haue liued in their Country, but onely because they are for the most part, blasted and breathed vpon with a Southerly VVinde, which in their language they call *A'tan*, and maketh the aire to be grosse and cloudy; causing in their bodies al the effects which are attributed by *Hippocrates* to the Southerly windes, in his thirde Booke and 5. Aphorisme, that is to say, when it reigneth it dulleth the hearing, immeth the sight, swelleth and aggrauateth the head, weakneth and abateth all the forces of the body.

Also, when *Hippocrates* compareth the temperatures of the one quality with the other, he refol-  
Lib. 3. Aphor. 15.  
ueth vpon this point; That the dry seasons are far more healthfull then the humid; that haue continued for a long succession of time, because excessive humidity is the true matter of putrifaction, as experiance telleth vs: For wee see, that in those places where the Marine or Sea-winds haue blowed long, all kinds of flesh (though neuer so new & fresh) will corrupt in lesse then an houre. These things

*The second Discourse*

things being considered, that it is most necessary for the conseruation of our bodies in health; that the seasons should follow their naturall tempera-  
tures, without any excesse or contrarietie, there  
is no doubt to be made but that our bodyes will  
fall into many vnnaturall diseases, when the natu-  
ral qualities of the seasons are peruerterd through  
the euil disposition of the aire, and wind that pre-  
dominate therein. It being so that for these 3.  
yeares space heere in *France*, the seasons of euerie  
yeare haue not kept their ordinary qualities. In  
the Sommer we haue had but little heate, in the  
Winter a little or no cold at all. Also the other  
seasons haue bene continually distempered with  
raine and moysture, together with much South-  
erly windes, whose nature wee haue declared be-  
fore; and this throughout all *France*.

I know no man so little seene in naturall Philo-  
sophie, or in Astrologie, which will not finde the  
aire to bee the efficient cause of so many euilles,  
which for these three yeeres space haue happened  
in the kingdome of *France*. For from whence  
should proceede those contagious Pestilences,  
which happened indifferently to olde and young;  
to rich and poore, & in so many places, but from  
the corruption of the aire? From whence should  
proceede so many kinds of Feauers, Pleurisies, A-  
posthumes, Catarres, defluctions of sinal Pox &  
Meazels? So many kinds of venomous Beasts, as  
Frogges, Toades, Grashoppers, Caterpillers,  
Spiders, Flies, Wasps, Snailes, Serpents, Vi-  
pers,

pers, Snakes, Lizards, Scorpions, and Aspicks ; but onely from a putrifaction resulting from the humidity of the aire, accompanied with a languishing heate. This is it (I say) that hath engendered in vs , and in all the Countrey of *France* , so many strange and vnowne accidents. Beholde therefore how our naturall heate hath bene weakened, how our blood and humors haue bene corrupted through the malignity of the aire, which these Southerly winds hath caused thorough the hot and moist quality thereof.

Thus much I haue obserued, that where there hath bene neede of Phlebotomizing, there hath beene but little blood drawne from any, whether they were yong, or olde, wounded, or not of so good or euill temperature ; but it hath bene corrupted, & appeared of white or greenish colours. This I haue alwaies obserued in these last warres, and in other places where I haue beene called to cure the wounded: such as haue beene phlebotomized by the prescription of the Physitian, either for the preuention of accidents, or the furtherāce of the cure. In all which, I say indifferently, I haue found the bloode putrified and corrupted. This being so, it must needs follow that the fleshy parts of our bodies cannot bee otherwise then euilly disposed : and all our bodies Cacochymate, seeing that their nourishment which is the blood is putrified, and the aire altogether corrupted. From whence it followeth, that those bodyes which were wounded in the fleshy parts were difficult

*The second Discourse*

ficul to cure, considering that there was in them a perdition of substance ; the which having neede of the regeneration of the flesh, could not be accomplished neither by Medicines, nor a ny Art of the Chirurgian, such and so great was the Cacochimy or euill constitution of their bodies. Euen as in an Hydropticke person there can no flesh be regenerated, because the blood is too colde and watery : and in the Elephanticke or leaprous Disease, the flesh and other parts do abide in putrifaction, because of the corrupted bloode whereby they are nourished. In like manner, in wounds of Cacochymed bodies, there can be no regeneration made of any good substance, because that to restore a lawdable flesh in the wounded part, it is required that the bloode should not offend neithier in quantity nor quality, and that the offended part be in its naturall temperature. All these things wer wanting in the times of these last warres : and therefore it is not to be wondred at, if the wounds which were then received (although they were but small and of little consequence in the noble or ignoble partes) haue brought with them so many tedious accidents, and in the end death, because that the airo which doeth incom-  
passee vs, maketh the wounds to bee corrupt and putrified, by reason of the inspiration and transpiration thereof, especially when it selfe is corrupt and putrified by altering and corrupting the humors.

Of this point I haue had the experiance of many

ny woundes which I haue beeene called to dresse Intollerable  
stinke pro-  
ceeding frō  
the wound-  
ed parts of  
men.  
that haue rendred a most insupportable stinking  
sauour, as a certaine witnesse of corruption and  
infection, insomuch that the assistants coulde

hardly endure to be present at their dressings. It  
neede not bee heere alledged, that this was for  
want of being cleanly kept, or often dressing, or  
for not administering vnto them things necessā-  
ry: for this corruption was as common to Prin-  
ces and great Lords, as vnto poore Souldiours;  
whose woundes (if by chance one day escaped  
wherin they were not drest, so great was the num-  
ber of the hurt souldiers) you should find in them  
the morrow after, a great quantity of Wormes, Venomous  
Wounds.  
with a meruailous stinking sauour. And more-  
over there happened vnto them many Apost-  
humes in diuers parts of their bodies opposite to  
their hurtes. For, if they were shot in the right  
shoulder, they should haue an Apostume on the  
left knee; and if the wound were in the right leg,  
the Apostume would arise in the left arme. As it  
happned to the late King of *Navar*, to *Mounfieur de Nevers*, and to *Mounfieur de Renden*, and al-  
most to all others. So it seemeth, that Nature be-  
ing so much oppressed with corrupted Humors,  
could not be sufficiently purged and discharged  
of them by woundes onely, but sent some part of  
the corruption to some other part either hidden  
or apparent. For if the Apostumes appeared not  
outwardly, they should be found in the inwarde  
parts, as in the Liuer, Lungs, or Spleene. From  
G 2 those

*The second Discourse*

those putrifactions were stirred vp certain vapors, which through their commination with the Haire causeth continual Feauers ; with the Liuer a let and hinderance of the generation of good blood; and with the Braine, swoonings, faintings, convulsions, and consequently death.

Now because of those aforesaide accidents, it is vnpossible for any Chirurgian (were he neuer so expert) to correct the malignity of the aforesaide wounds : neuerthelesse those that are employed therein ought not to be reprehended, because it is impossible for them to war against God, nor against the aire, wherein oftentimes are hidden the rods of his Diuine Justice. If therefore according to the sentence of ancient *Hippocrates*, who saith ; That all contused wounds ought to bee brought to suppuration, therby to bee perfectly cured; which method we are sometimes constrained to change, because of the putrifactive Gangrenes and Mortifications which doe accompane such wounds, through the corruption of the aire ; and can any blame or accuse vs, because wee are constrained through necessity to change & alter that manner of curation, and instead of suppurative Medicines to vse other remedies, to resist such accidents which not onely happen in wounds made by Gun-shot, but also by swords or staves: which remedies shall bee described in this present Discourse. Besides humane causes, that man is ill instructed in the knowledge of Celestiall things, which doeth not beleeue for certaine, that the  
wrath

wrath of G O D hangeth ouer vs to punnish the faultes which ordinarily we commit against his Maiesty ; his scourges are prepared readie, his rods and weapons haue their ministers alwaies at hand to execute the commandement of his Divine Iustice, into whose secrets I dare enter no further; but will conclude with the opinion of the best aduised Practitioners, that the principall occasion of the aforesaid mortality, did proceed from the ure and determinate will of God, who by the temperature which he hath giuen to the ayre and winds (as the Heralds of his diuine Iustice) hath made vs apt to receiue the afore-

saide inconueniences, which we haue incurred by our iniquities.

G3

CHAP.



THE  
*Method of curing Wounds made  
 by Gun-shot, and other  
 fiery Engines.*

Also by Arrowes, and Darts, and  
 their accidents.

CHAP. I.

*The division of woundes, according to the diversitie  
 both of the offendred parts, & the Bullets whereby  
 they were made.*



LI Wounds made by Gunshot  
 on the body of man, whether  
 they be simple, or compounded  
 with dilaceration, contusion,  
 distemperature, and tumor, are  
 made some in the noble parts,  
 others in the ignoble parts; some in the flesch  
 parts, and others in the Nervous and bony parts;  
 sometimes with ruption and dilaceration of the  
 great vessels, as of the Veines and Arteries, and  
 sometimes without ruption of them. Such kinde  
 of

## The diuision of Wounds.

39

of wounds are also sometimes superficiall, but most commonly profound and deepe, yea, euen to the penetrating through the body & members of them that receiue them.

Differences  
taken from  
the matter  
of Bullets.

Another diuersity is taken according to the differences of the Bullets: amongst the which, some are great, some in a meane substance, and some are small as Haile shot: whereof the matter (which is ordinarily but of Lead) is somtimes turned into Steele, Iron, or Tin, rarely into Siluer, but never into Gold. According to the which differences, the Chirurgian ought to take diuers Indications to operate, and according to them to diuerſifie the remedies. Now we ought not to iudge those great accidents which happen in these wounds to proceede from the combustion of the Bullet, nor from the venonosity or other ill quality of the pouder, because of the aforesaide Reasons alledged in the precedent Discourses, but because of the contusion, dilaceration, and fracti-  
on which is made thorough the violence of the Bullet in the neruous and bony parts. For when it hapneth that the Bullet toucheth onely but the fleshy parts, and in bodies of good temperature, I haue found those Wounds he eretofore to bee as little rebellious in their curations, and as easie to handle as those which are made by anie Instru-  
ment of that kinde; I meane such which make a round and contused wound, or of such a figure which the shot maketh: and therefore it is most necessary that there bee a greater regard had to the

From whence  
proceedeth  
the malig-  
nity of  
wounds  
made by  
Gunshot.

## *The signes of Wounds*

Intention  
of the Au-  
thor.

the symptomes or accidents of the contusion, di-laceration, fracture of the bones, and euill qual-  
ity of the incompassing aire, then to the combu-  
stion which is thought to proceed from the Bul-  
let, or venenosity of the powder, because of the  
reasons aforesaide. This I thought good to pub-  
lish to the world to ayde yong and new Practitioners in Chirurgery, in the same manner & Me-  
thod which I haue my selfe experimented in fol-  
lowing the warres, hauing therein continued for  
the space of forty yeares. Wherein I protest I  
haue followed the counsel of Physicians and peo-  
ple of my profession, such as were most renowned  
and approoued both by their doctrine and long  
experience: concerning whom I doe assure my  
selfe, that they do know more then my writinges  
can containe. And therefore I write not for them,  
but for the yong Prentises in this Art, & for such  
as want better meanes to helpe them in vrgent ca-  
ses proceeding from these saide wounds, whome  
neuerthelesse I aduise to take the counsell of the  
Chirurgian, if his owne reason and experience  
do not guide him in his operations.

### CHAP. II. *Of the signes of wounds made by Gunshot.*

IN the beginning of the Curation, you ought  
first to know whether the wounds was made by  
Gun-shot or no; which is easie to be seene if the  
figure of the wound be round and huid in colour,  
and

and the naturall colour of the part is chaunged, that is to say, yellow, azure, liuid, or blacke. Also at the same instant that the patient receyued the blow, if he say that he felt an agrauating pain, as if he had beene strooke with a great stone, or with a club, or as if a great burthen had falleyn vpon the wounded part. In like manner, if the wound hapned not vpon any great vessell, if there have issued but little blood from the wounded partes, which happeneth because they are contused, and greatly crushed, and therefore they turnisie presently after the blowe receyued; insomuch, that sometimes the passage is so stopt, that there can hardly be conueyed in either tent or Seton; and thereby it cometh to passe, that the flux of blood is suppressed, which otherwise would flow at their Orifices. Also the Patient therein feeleth a great heate, which hapneth because of the impetuositie proceeding both from the violent motion of the Bullet, and the vehement impulsion of the ayre, with the ruption of the flesh and neruous partes. Sometimes also because of the fractured Bones, which depresso and pricke the sayde parts; from whence ensueth fluxion and inflammation. Also because of the great contusion which the Bullet maketh; which by no meanes can enter into anie part of our body but by great force, by reason of the round figure thereof, whereby the place becommeth blacke, and the neigboring partes liuid: and from thence there followeth many great accidents; as Paine, Fluxion, Inflammation, A-

## *The Method of curing*

postume, Sspafine, Faintings, Palsie, Gangrena, Mortification, and finally death. They oftentimes send forth a Sanies virulent, & very fætide, which proceedeth from the great abundance of humors which flow to the wounded part, because of the vehement crushing, contusior, and dilaceration of the parts, and for want of natural heat to comfort and governe them. Also by reason of the Cacochimy of the body, and the neruous partes, as the ioynts: also such wounds are founde for the most part greater then such which are made by the punction of a Buckeshorne, or the Wound made by a stone or any other such like Contusions, because that the thing it selfe was round, and doth therfore require a greater and more violent impetuosity to make it penetrate into the inward parts of the body, wherein it seemeth to equalize the blowes of thunder.

### CHAP. III.

*The manner how to handle the aforeside woundes at the first dressing.*

First, it is convenient that the Chirurgian shold amplifie the wound (if the part offendid doe permit the same) for these causes: that is, both to give free issue vnto the Sanies, as also to give ample passage vnto all such straunge bodyes which might haue bene conveyed in with the shot, and to draw them forth (if any there be) as any portion of the apparell, wad, paper, peeces of Harness,

nesse, Maile, Bullets, Shot, Splinters of bones, dilacerated flesh, and other things that shall bee found therein; and this to bee done at the first dressing if it be possible. For the accidents of pain and sensibility are not so great in the beginning, as they are afterwards.

Now for the better extraction of the aforesaid things, you ought to place the Patient in the same situation that he was at the time when he was first shot, because that the Muscles and other parts being otherwaies situate, may stop and hinder the way; and for the better finding of the saide Bullets, and other things, it is fitting that search bee made with the finger (if it be possible) rather then with any Instrument, because that the sense of feeling is more certaine then any Probe, or other inexpensible thing. But if the bullet haue pierced farre into the body, there it may be reached with a Probe, round in the end thereof, for feare of causing paine: neuerthelesse it hapneth somtimes that the Bullet cannot be found by the Probe, as it hapned in the campe of *Perpignan*, to my Lord the Marshall of *Briffac*, who was wounded with a Musket shot neere to the right *Omoplate* or shoulde-blade, where many Chirurgians because they could not finde the saide Bullet, affirmed that it was entered into the capacity of the body, but I not hauing that opinion, came to seeke for the Bullet, where first without vsing any Probe, I cau-  
fed him to be placed in the same gesture of bodie as he was at that time when he was Wounded:

The Exam-  
on of the  
Patient to  
extract vns  
na urall  
things.

H 2 then

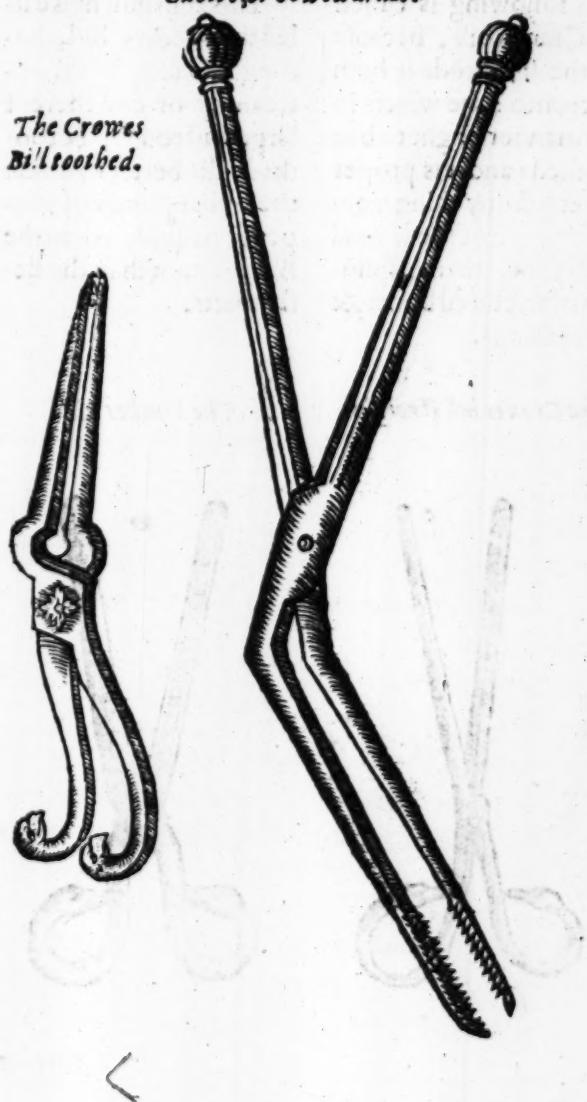
## The Method of curing

then I began with my fingers gently to compresse about the neighbouring parts of the wound; in doing whereof, I found a tumor and hardnesse in the flesh, with the sense of paine, and hidnitie of colour in the place where the Bullet was, which was betwixt the lower part of the *Omoplate*, and the seventh and eight *Vertebræ* or turning ioynt of the backe. In which place, incision was made to draw forth the shot, whereby he was shortly after cured. Wherefore it is very conuenient to search for the Bullet not onely with the Probe, but (as I saide before) with the fingers, by handling and feeling the part and places about the same where you may conieecture the Bullet to haue penetrated

### Chap. 4. A Description of such Instrumentes which are proper to extract Bullets, and other strange Bodyes.

**A**S for the strange bodies which may be infixed in the wound, they may bee extracted by such Instruments hereafter described, which are different both in figure and greatnesse according as neede shall require; whereof some are toothed, & others not. And it is fit the Chirurgian should haue of many and diuers fashions: some greater, and some smaller of every kind to accommodate them to the bodies and wounds, and not the bodies and wounds to his Instruments.

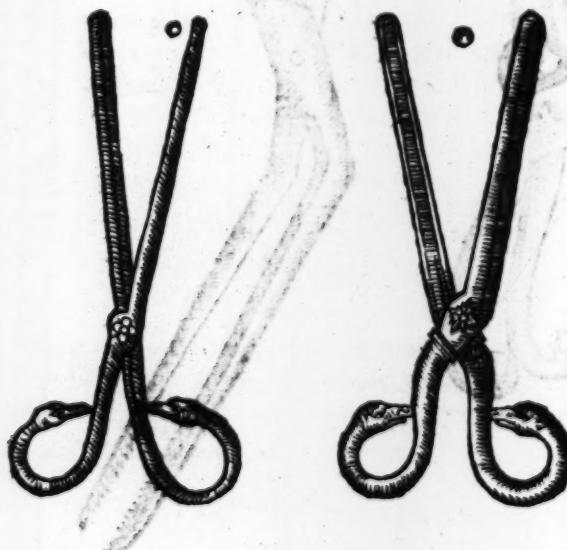
A Cranes Bill brought into the forme of an Elbow,  
Cubite, or bowed arme.



*The Method of curing*

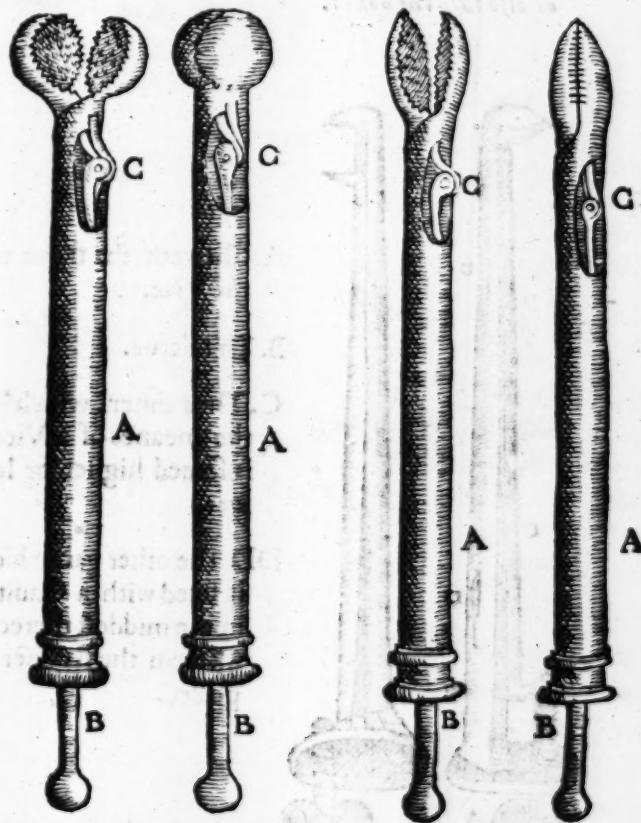
This following is called the Cranes bill, because of the similitude it hath thereunto; the which in like manner ought to bee toothed; and it is proper to extract any thing from the bottom of the wound both shot, maile, splinters of fractured bones, & other things.

This Instrument is called the Duckes Bill, having a Cavity in the extremitie or end thereof large and round, & toothed, the better to holde the Bullet; and it is proper principally when the Bullet hapneth in the fleshy parts.

*The Cranes bill straight.**The Duckes Bill.**Another*

Another Fashion of  
draw-Bullet.

Another fashion of Draw Bullet, called  
the Lizards head to draw the Bullet,  
marked with the same Letters as the  
former.



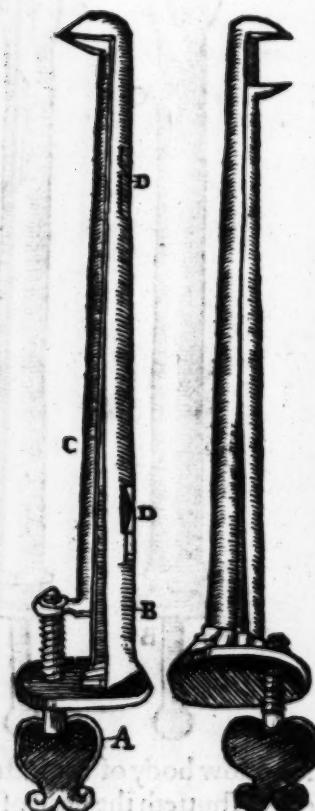
A. sheweth the Pipe, or the hollow body of the instrument

B. The Rod, which openeth & shutteth the head of the In-  
strument.

C. The ioynt.

## The Method of curing

Another Instrument called the Parrats Bill, and it is proper to draw foorth any peeces of Harness which may be inserted into the bottome of the Member, or also into the bones.

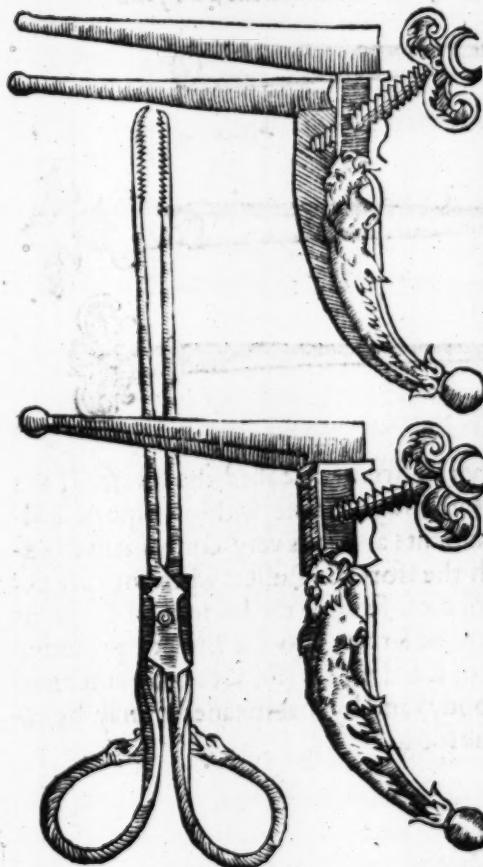


A. sheweth the stalle of the Vice.

B. The Scrue.

C. The runner, which by the meanes of a Vice, is scrued higher or lower.

DD The other part which is fixed with a Cauitie in the middest thereof, wherein the Runner is placed.



Another Instrument which is callled the Swans Bill, which openeth with a Vice, accompanied with a payre of Forceps, which beere before wee have called the Cranes bill, and it serueth to drawe foorth any strange body, after that the wound is dilated with the saide Swans Bill.

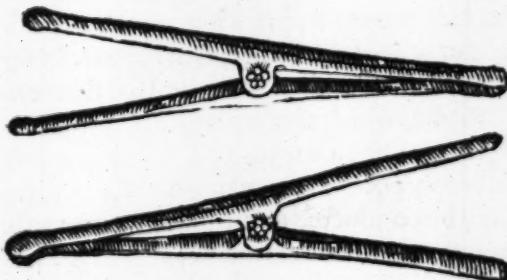
If the strange bodyes, especially the Bullet or shot, be not ver-  
ty deepe, they may be drawne forth by Eleuatories.

*The Method of curing  
An Instrument called the Tire-fond.*



Another Instrument called the *Tirefond*, the which is turned by a Scruie within a pipe or hollow Instrument; and it is very conuenient to extract forth the aforesaid Bullets when they are penetrated or are infixed in the bones; for the point thereof is to be serued into the Bullet, prouided that it be of Lead or Tin (for it cannot enter in to a harder body) and by that meanes it may be easilly drawne forth.

A Dilatorie.



This Instrument is named a Dilatory, which may be vsed to open and dilate the wounds, to the end that the strange bodyes may the easier bee found and extracted, for by compressing together the two ends thereof, the other two do open, it may also serue in many places, as the nostrils, fundame; and other parts.

The Instruments which follow are Needles for the Seton, and are very conuenient when as you would passe in a Seton to keepe the wound & the way of the Bullet open, vntill you haue drawne forth all the strange bodies which might yet remaine therein; besides, they may serue to explore or search into deepe wounds to find the Bullet, not causing any paine, because they are round and polished towards their extremities.

You must vnderstand that those Probes which are vsed to serch the bullet ought to be of a mean greatnessse, polished and round on their extremities, because that the edges of the wound, and

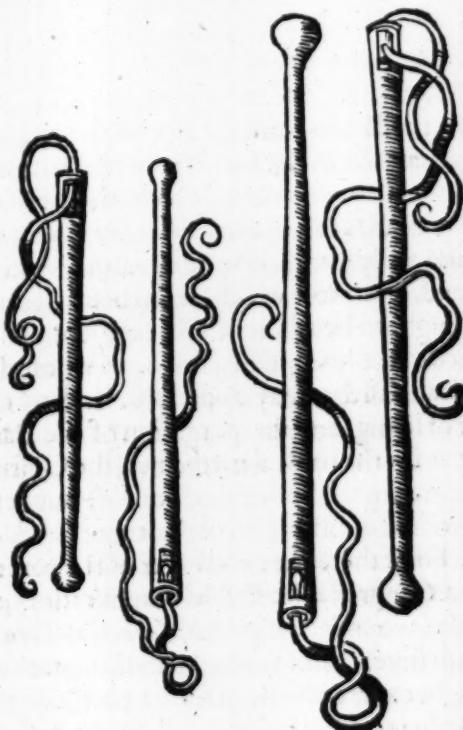
Of what  
bignes the  
Probes  
ought to be.

*The Method of curing*

the way whereby the Bullet hath passed, doeth incontinently ioyne together, and touch the one side against the other. In such maner that the sayd wound or way of the Bullet, will appeare in sight to be much smaller then it is: and for that cause those Probes which are slender and sharp, are nothing so commodious; for they will stop and stay on euery part of the reioyned wound, and cannot so easily be conducted to the place where the bullet is, as those which are somewhat greater. Also those which are small and slender, doe pricke and offend the flesh of the wound whereby the Patient is much mollest, and is oftentimes a cause that the Bullet cannot be found. Also you ought in like manner to haue those which are greater & longer to passe through the thigh when necessity shall require. Which length of them ought to be changed and diversified according to the greatnessse of the wounded member. For I am of this opinion, that one should not striue too much to make them passe alwayes thorough the wounded parts for feare of indurjng paine and other accidents. For the Patient may be cured as well although the Seton be not passed thorough, as by experience it hath beene seene, that a Bullet hath bene shot through the body, and yet without the passing through of a Seton, they haue neuerthelesse bene cured.

*Probes*

Probæ which may serue for Setons.



## C H A P. V.

*The manner how to handle those woundes at the first dressing, after that the strange bodges are extracted.*

The principall intentioun of the Chirurgian. After you haue drawne forth the strange Bodges by the aforesaide meanes, the principall intention shall be to combate against the contusion and alteration of the aire, if it be hot & moist, and disposed to putrifaction; which shall be done both by remedies taken inwardly, as by others applied outwardly; and also put or infused within the wound. For those which are to bee taken inwardly ought to be administred by the counsel & ordinance of the learned Physician, to whose doctrine I leauue all that may appertaine both to the manner of living, and the purgation of the Patient. But as for the topical medicines, the Chirurgian (according to the things aforesaid) ought to consider of the constitution of the times, and of the aire. For if there bee no danger of the part to fall into a Gangrena, he shall vse suppuratives, as in contused wounds, which are *Oleum Castellorum* or of a digestiue, hauing a regard to the nature of the part, because that the neruous parts doe require Medicines more drying, then the fleshye parts do. For in the ioynts and neruous parts, you may vse of the Terebinth of Venice, or the Oyle of waxe, of Masticke, the yolkes of Egges, adding thereto a little *Aqua-vitæ* rectified. Such like

like things haue power to disiccate and consume  
the watriish humidity which issueth from the ner-  
vous parts, and also easeth the paine. *Isobertus*  
Physitian in ordinary to the King, and Chancel-  
lour of the vniuersity of *Montpellier*, who hath  
most learnedly written of the Woundes made by  
Gunshot, because he hath seene many wounded  
when he followed the wars, in the Treatise which  
he hath made, he saith ; that in the simple wounds  
made by shot, there ought not to be vsed any Me-  
dicine Escharoticke, or that causereth an escharre,  
either actuall or potentiall, because they doe en-  
dure paine, Inflammation, Gangrena, Feauer, &  
other pernicious accidents. Also because that the  
Eschar or crust hinc ereth the suppuration which  
ought presently to bee indured, to separate the  
contused flesh, together with the Sanies, lest that  
all should degenerate into putrifaction, as easilie  
it may when the superfluous humour putrifieith  
long in one place, nor hauing free passage; not so  
much as for the exhalatiō of the putrified vapors,  
because that they are enclosed and couered in  
with the eschar : which being inclosed doe multi-  
ply, insomuch that they do require a greater place  
then is permitted them; then they passe and enter  
from the small vessels into the greater ; and from  
thence into the noble parts, from whence most  
commonly ensueth death : neuerthelesse, if there  
bee any suspition of putrifaction, then in such a  
case you ought to passe from suppuratiues, vnto  
remedies that do resist putrifaction, leaving the  
pro-

Why no es-  
charoticke  
Medicine  
ought to be  
vsed.

## The Method of curing

proper care to come vnto the accidents. Wherefore at the first dressing in the case aforesaide , in the wound may bee vsed this following vnguent.

Description  
of our Egyp-  
tiacum pro-  
per for the  
aforesaide  
wounds

4. puluer. alumin. rochæ, viridis æris, vitrioli romani, mellis rosat. an. 3 ij. aceti boni quantum sufficit, bulliant omnia simul secundum artem, & fiat medicamentum ad formam mellis. The Vertues of this vnguent is, that because of the heat & tenuity thereof, it inciseth and attenuateth the humors, reuoketh the naturall heate which was repelled by the vehement impulsion of the blow, & the violent agitation of the aire conducted by the Bullet. Moreouer it correcteth the putrifaction of the virulent humor, which presently cleaueth vnto, and so disposeth the contused flesh in such manner, that it maketh an escharre. This vnguent when and as often as it shall be needfull may bee applied with Tents or Setons, beeing first dissolved with a little wine or *Aqua-vitæ* : The which tents ought to be both great and long for the first dressing, thereby to inlarge and dilate the wound that the Medicines may therby the better be conveyed in. But afterwards they ought not to be applied so long or great . Also that the Medicine may the better be conueyed into the bottome of the wounds, it may bee incited in with a Syringe. Moreouer the vertue and strength thereof shalbe diminished according to the temperature of the body, and sensibility of the hurt. As if the wound be in the neruous parts, it shall be mixed with the Oyles of Terebinth, or of *Hypericon*, in such quantitie

tity as the expert Chirurgian shall know to bee needfull. But the Egyptiacum is not to bee vsed at all, vntesse it bee in such times which are Pestilentiall and dangerous for those saide wounds, & that they do decline to putrifaction. After the vse of Egyptiacum you may separate & make the escharre fall, with remollitiue and lenitiue things, as the following Oyle in vsing thereof a litle hotter then luke-warme.

¶. Olei violati tb iiij. in quibus coquantur castelli duo nuper nati, vsque ad dissolutionem ossium, addendo vermium terrestrium præparatorium tb j. coquantur simul lento igne, deinde fiat expressio ad vsum, addendo Terebinthinae Venetae 3 iij. aquæ vitæ 3 j. The said Oyle is of great & meruellous efficacy, both to appease the paine, as also to suppurate the wound, and to make the escharre fall. But for want thereof this which followeth may be applied which is easier to be had.

¶. Olei semini lini, & liliorum an. 3 iij. vnguent. basilic. 3 j. liquefiant simul, & fiat medicamentum, de quo vulneri indatur quantum sufficit. I have knowne that the saide Oyles being applied in the beginning of the hurt reasonable warme to appease the paine, to lubrifie, relaxe, and moysten the edges of the wound, disposing it to suppuration, which is the true way to cure those woundes, as *Galen* himselfe reciteth from *Hippocrates*, saying; That if the flesh bee contused, crushed, or battered with any Dart, or in any other manner, that it ought so to be handled that it bee brought

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to suppuration as soone as may bee: For by this meanes the wound shall bee the lesse mollesced with Phlegmon (or inflammation.) Also it is necessary that the contused flesh be putrified, liquefied, and conuerted into *pus*, that new flesh may afterwards be regenerated.

*Ionbertus* doth very much approoue this remedy, which I neuer yet did experiment, and it this. Take of the pouder of Mercury twice calcined 3 j fresh Hogs greace, or sweete Butter, 3 viij. Camphire dissolued in Aqua vitæ, 3 ij. mixe them together, adding thereto a little of the oyle of Lillies or Linseed. Experience doeth shew that this remedy is excellent, and reason doth also confirm it. For the powder of Mercury accompanied with vncious and moistning things, causeth the contused flesh to suppurate easily, & in short time without induring any great paine. As for the Camphire, whether it bee hot or cold, it serueth greatly because of the excellent tenuitie of the parts thereof. By reason wherof, euery Medicine of what quality soeuer it be, doth penetrate, and disperse the Vertues thereof the better. Moreo-  
uer, the saide Camphire doth resist all putrifac-  
tion. Some do instill into the wound Aqua vitæ, in  
the which they dissolve calcined Vitrioll; which  
medicine is not suppurative, but it resisteth putri-  
faction; of the which you may vse in times & sea-  
sons that are hot and moyst. Another 4. Olei  
Terebinth. 3 iiiij. Aqua vitæ. 3*lb* miscæ.

Now, if the wound were giuen neere at hand,  
then

The vertue  
of Camphire

then of a certaine the wound may bee with burning, by reason of the flaming powder, and shall be applyed medicines proper vnto the combusti- on thereof, neuerthelesse not leauing the contusion: and as for the parts about the wound, there you shall not apply Medicines which are refrigeratiue and astringent, but remollitiues and suppuratiues, for they canot be vsed at the first dressing, because they do coole and weaken the part, and hinder suppuration. Also they do constipate the skin, which is a hinderance to the transpiration of the fuliginous vapors: from whence ensueth Gangrena and mortification, thorough the vnsit application of such like medicines. VVhere the contusion shall bee great, there you may make many scarifications, therby to discharge the part of the bruised bones which is subiect to putrifie: but in the neighbouring parts, and about the contusion farre off from the wound, you ought to apply cooling & corroborating medicines to prohibite and hinder the defluxion of Humours, as is this.

¶. Puluer. boli armenis sanguin. Dracon. puluer. myrrh. an 3 j. succi solan. semperuui, Portulac. an 3 j. & album ouorum iiiij. oxyrrh. quantum sufficit, fiat linimen. vt decet. Or other such like: whereof it is conuenient you should vse, vntill you are assured of the perfect preuention of the accidents. In like manner, great care ought to be taken in the apt cooling of the member, situating it in a figure proper, and without pain if it be pos-

Combusti-  
on ioyned  
to woundes  
made by  
Gunshot.

Time to observe at the beginning, vntill that the wounde beginneth to suppurate, you neede not dress the patient but from 24. houres to 24. houres: and when the suppuration beginneth, and by consequence the paine, feauer, and disquietnesse shall augment, the Patient ought then to be dressed every twelve houres. But when there shal be great quantity of matter which doth molest the patient then it is needfull that he be drest every 8.houres: & when the *pus* beginneth naturally to diminish, the once every twelve houres shall suffice. Finally, when the Vlcer beginneth to be filld with flesh and sendeth not forth much matter, then to bee dressed once a day shall be sufficient, as in the beginning.

## C H A P. VI.

*How the saide wounds ought to be handled  
after the first dressing.*

**A**T the second dressing, and in the rest following, if there be no danger of putrifaction and Gangrena, you may vse one of the aforesaid oiles adding thereunto of the Egges, with a little Saftron, which shall bee continued vntill the excrement of the wound bee digested and brought to suppuration. Heerein it is to be noted, that in *Pus is not so made by Gunshot, as in all other wounds.* wounds made by Gunne-shot, it is longer before they bee brought to suppuration then other wounds made by other instruments, because that the bullet and the aire which it thrusteth before it,

it, dissipateth (by reason of the great Contusion thereof) the naturall heate, and the spirites from the part, which causeth that the concoction is neither so soone, nor so well made, for want of naturall heate, from whence there followeth an exceeding stetide or stinking sauour of the *Sanies* and other accidents very dangerous. Neuerthelesse it is for the most part made in three or foure dayes, sometimes also sooner or later according to the temperature of the body, and of the part, & the quality of the aire hot or cold. These thinges done, it shall be needfull to begin to mundify by little and little the wound, by adding to the afore-saide Medicine, of Terebinth washed in Rose water or Barly water, or such like, thereby to take away the heate and mordacity thereof. If the disposition of the time be very cold, then you may adde vnto it of *Aquavita*, according to the counsell of *Galen*, who teacheth that in winter ought to be applied hotter medicines then in sommer. Afterwards you may vse of this Mundificatiue,

4. Aquæ decoct. hordei quantum sufficit, succi plantaginis, Appij, Agrimonæ, Centauri minoris, an. 3 j. bulliant omnia simul, in fine decoctionis adde Terebinth, venet. 3 iiiij. mellis Rosati. 3 ij. far. hord. 3 iiiij. Croci 3 j. miscantur omnia simul bene agitando fiat mundificatum mediocris consistentiae. Another.

4. Succi clymeni, plantag. absinth, appij, an 3. ij. Terebinth. venet. 3 iiiij. syrrup. absinth. & mellis Ros. an. 3 ij. bulliant omnia secundum artem, po-

*The Method of curing*

stea colentur, in colatura adde puluer. Aloes, Mastich, ireos, florent. far. hord. an 5j. fiat mundificat. ad vsum dictum.

Or this;

2. Terebinth. venet. lotæ in Aqua Ros. 3 v. olei Ros. 3 j. mellis ros. 3 iij. myrrh, aloes, mastich, aristoloch. rotundæ, an 3 j & far. hord. 3 iij misce, fiat mundificatiuum. The which shall bee applyed in the wound with Tents and setons, neyther too long, nor too great; because that then they may hinder the euacuation of the Sanies or matter, & of the vapors elevated from the wounds; which if they should be retained, it is most certaine that they will heat the part, and acquire to themselues an acrimony, which afterwards will eate into the edges and other parts of the wound; from whence insueth dolour, fluxion, inflammation, fluxe of blood, Apostume, and putrifaction, which are easily communicated to the noble parts, and cause afterwards many pernicious accidents. And therefore the Chirurgian need not to feare any thing at all, of the cloing or conglutinating of the aforesaide wounds, because that the flesh being so greatly contused and dilacerated, cannot consolidate vntill the contusion be first suppurated and mundified. And therefore I aduise him not to vse any Tents or Setons but those that are very small and slender, to the end that they may not hinder the issue of the matter contained, and that the patient may indure them easily, thereby to auoyde the aforesaid accidents. The vse of Tents and Setons is to carry the medicine vnto the bottom of the

Aduertisement to the young Chirurgian.

the wounds, and to keepe them open, especially in their Orifices, vntill that the strange and vnnaturall things be expelled : but if the wound bee sinuous and deep in such maner that the medicines cannot be conueyed vnto all the offended parts, then you may make iniection with the decoction following.

¶. Aquæ hordei  $\frac{1}{2}$  iiij. agrimon. centauris, minoris, Pimpinellæ, Absinth. Plantag. an. m. Rad. Aristoloch. rotun. 3 fl. fiat decoctio ad  $\frac{1}{2}$  j. in colatura expressa dissolute aloes hepaticæ 3 iiij. mellis rosat. 3 ij. bulliant modicum. With this there shall be inuection made three or four times together, every time that the patient is dressed. And if this remedy be not sufficient to clese the matter, and to consume the spongy and putrified flesh, you may then mixe with the said decoction of Egyptiacum, dissoluued in such a quantity as necessity shall require; as for a pound of the sayd decoction, an ounce of the said vnguent more or lesse, the which is of most great efficacy to correct the spongeous flesh from the bottome of the said wounds: the like also doth the saide Egyptiacum, being applyed aboue on the excrence of the spongeous flesh. I haue in like manner experimented the powder of Mercury and Alom bur ned, mixed together in equall portions, to haue in that case the like vertue vnto sublimate or Arnick (but in working it is nothing so painfull) and it maketh also a very great eschar, whereat sometimes I haue much wondred. Some practitioners do.

A Cathe-  
ricke pow-  
der.

## The Method of curing

doe vse oftentimes to leaue a great quantitie of their iniections in the bottome of such sinewous wounds, the which I approoue not. For besides the putrifaction and corruption which thereby it getteth, it holdeth the parts extended, and doeth humid or moysten them: whereby it commeth to passe, that Nature cannot do her duty to regenerate the flesh, considering that for the curation of all Ulcers (that being an Ulcer, as saith Hippocrates) the scope or intention ought to be to dissise them, and not moisten them.

Many doe erre also in the too frequent vse of Setons, in this; That not applying themselues to reason, they do vse to renew them alwaies, whereby they rub and fret away the tender flesh on the edges of the wound; the which rubbing and chafing doth not onely cause paine, but also bringeth with it many euill accidents. And therefore I doe very much commend the vse of the hollow tent, which are made either of Golde, Siluer, or Lead, such as are described in the wounds of Thorax: I meane to be vied in such places which haue lapasity sufficient, and where there shalbe great quantity of *Sanies*.

Compresses  
or Boulsters. Also it is most needfull that there shalbe applied Compresses or Boulsters iust vpon the bottome of the sinus, thereby to comprimate those parts which are distant from the Orifice, & to expell the *Sanies*. To which end, it is fitting that the boulster be perforated iust vpon the orifice of the sinuous ulcer, and vpon the hollow tents; & that ther-

therein there bee placed a sponge to receive the Sanies : for by this meanes the expulsion, euacuation, and absumption thereof, shall be much better. In rolling, the Ligature ought to bee first begun on the bottom of the sinus, with a mean combustion, to the end that the matter bee not retayned within the Cauity thereof. The Rollers and Boulsters proper to this operation, shall bee first moistned in Oxyerat, or soure Wine, or in any other astringent liquor, to roborate and strengthe the part, and to hinder the defluxion. But great heed ought to be taken, that ther be not too great an attrition made vpon the part, because that thorough the attrition or straight binding, extreme paine may be produced by meanes of the exhalation of the fuliginous excrements which therby are prohibited. Also it may cause the member to become Atrophied or withered thorough the too long continuation of the said Rollers.

## C H A P. VII.

*Of the meanes to draw foorth such strange bodies,  
which shall yet remaine to be extracted.*

**A**ND where there shall remaine any splinters of bones, which at the beginning were not extracted by the aforesaid Instruments : then you ought to apply this medicine, which is of great power to draw them foorth, and all other strange bodies.

R. Radicis, iros, florent. panac. & Cappar.

L

an.

*The Method of curing*

an. 3 iij. aristolochiæ, rotundæ, nianæ, thuris,  
an. 3 i. in pollinem redecta concorporentur mell.  
rosar. & terebinth. venetæ. ana 3 ij.

Another remedy to take away the saide Splinters, and corrupted bones.

R. Resina pini siccæ, 3 iij. Pumicis combusti  
& extincti in via albo, radic. ireos, aristolochiæ,  
ana 3 l. thuris 3 j. squamæ æris 8ij. in pollinem  
rediganter diligenter, incorporentur cum melle  
rosato, & fiat medicamentum.

Besides these remedies which haue in them, &  
from their nature, such power to attract foorth  
strange bodies, there are of others which haue the  
like effect and vertue by putrifaction, *vt omnia*  
*stercore Animalium*. Also Leauen and such like, as  
Galen writeth.

**C H A P. VIII.**  
*Of the Indications which ought to bee obserued in the  
saide wounds.*

**T**H E mundification and the extraction of the  
saide strange bodies being done, it followeth  
then to aide Nature; both to regenerate flesh, &  
allo to cicatrice it, as wel by things taken inwardly,  
as by outward Medicines hereunto conuenient,  
and to proceede therewith by certaine Indica-  
tions, which are taken first from the essence of the  
disease, and from the cause thereof. If it bee pre-  
sent although that from the primitiue cause (ac-  
cording to Galen in the third of his Method) here  
ought

ought no Indication to bee taken, no more then from the time wherein hee meaneth from the absent cause, and from the time past. In like manner Indication ought to be taken from the fourie vniuersall times of the cureable disease, that is to say, from the beginning, increasing, state, and declination: according to the which times, the remedies ought to be diuersified. Another Indication is takē from the temperature of the Patient, which also changeth the curation. For every rationall and Methodicke Chirurgian knoweth well, that other remedies are required in a Chollerickē body, then in a Flegimatick; and so of the other temperatures both simple and compound. Vnder the which Indication of the temperature, shall bee comprehended that of the Age, which receyueth not all remedies alike, but deauandeth some for the yong persons, and others for the old.

Indication  
takea f. om  
the tempe-  
rature of  
the bodye.

Moreover, Indication is to bee taken from the custome or manner of living of the Patient; as whether hee hath beene accustomed to eate and drinke much, and at all houres: for then you ought not to ordaine him such an exquisite dyet as vnto him that is accustomed to eate and drinke but little, and at certaine houres: and therefore the diet of *Panades* are not so proper vnto vs as vnto the Italians, because our bodies require more lenitive things: which effect it woorketh with them, because of Custome, which is a second Nature. Vnder this accustomed manner of living, ought to be vnderstood the condition of the life, and the

## The Method of curing

exercise of the Patient, forasmuch as you ought to vse stronger remedies vnto the robusticke & men of labour, such as haue their flesh hard, then you ought to vse vpon the delicate, and such which labour but little, and exercise lesse. Some there bee that had rather comprehend this Indication vnder that of the temperature. For my part I wil not dispute of it, but will leauue the resolution thereof wholly to the Doctors.

The Indication taken from the virtue of the patient.

The Indication taken from the virtue of the patient, is aboue all other things to be respected, because that it failing or being very weake, all other things ought necessarily to bee best to come vnto it. As when we are inforced through necessity to take off a member, or to make any great incisions, or such like things, if the patient haue not vertue sufficient to indure the paine, it is necessary to deferre such operations (if it possible) vntill that Nature be restored, and hath recouered her vertues both by good nourishment and rest.

Another Indication may bee taken from the Ayre which doth encompass vs: vnder the which are comprehended the seasons of the yeere, the region, the place of our abiding, and the constitution of the time. For according to the heat, coldnesse, drinessse, and moysture of the aire, also according to the continuation of these qualities, the Medicines ought to be prepared. And therefore (as sayth Guido) the wounds in the head are more difficult to heale at *Paris* then at *Avignon*; and the wounds in the legges are more tedious at *Avignon*.

Sentence of Guido.

NON

non then in *Paris*; by reason that in *Paris* the ayre is more cold and moyst then at *Auignon*, which is a contrary thing, especially to all woundes in the head. Contrarywise, in *Auignon*, the heate of the encompassing aire doeth melt and subtillize the humors; whereby such humours more easily and in greater abundance do fall downe into the legs: from whence it commeth that the wounds in the legges are more difficult to cure at *Auignon* then at *Paris*. But if any one doe alledge experience to the contrary, that the woundes in the head, do more often become lethall or mortal in hott Regions then in colde. To him I answer, that that procedeth not by reason of the aire, inasmuch as it is hot and dry, but because of some superfluous humidity or euill vapour communicated with the aire; as in those partes of *Prouence* and *Italy*, which are neere to the Mediterranean sea.

The Indication of curation may also bee taken from the temperature of the wounded partes: for the fleshy parts doe require other remedies then the Bones or the Nervous partes, and so others. The like ought to bee obserued concerning the sensibility of the saide parts, which in like manner altereth the manner of curation: for it is not fitting to apply such sharpe and violent medicines to the Nerves and Tendons, as to the Ligaments and other insensible parts. The dignity and action of the wounded parts hath no lesse priuiledge in the act of curation then the former. For, if the wound be in the Braine, or in any other of the vi-

Indication  
taken from  
the wound-  
ed part.

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all of naturall parts, it behooueth that their Medicines diuersified and applied according to their dignity and action, because that from the contemplation of these woundes, is oftentimes gathered a certain iudgement of the insuing accidents. For such woundes which doe penetrate into the ventricle of the Braine, the Heart, or in the great

Aphorif. 18. Book 15. vessels, in the Chest, in the Nervous part of *Diaphragma*, in the Liver, in the stomack, in the smal guts, and in the bladder, if the wound bee great, they are necessarily mortall. Also such which are in the ioynts, or neare thereunto, and in bodies Cacochymed or of an ill habitude are oftentimes mortall, as hath beene sayde heere before. In like manner, the Indications which are taken from the position and colligance of the affected part ought not to bee forgotten, neither the figure thereof, as *Galen* hath sufficiently explained in the 7. of his Method, and in the second to *Glaucus*.

## CHAP.IX.

How Diseases become compounded.

**M**oreouer in taking the aforesaid Indication, you ought to consider whether there bee a complication of the disease, or not: For, euen as the simple disease proposeth a simple Indication, so the complications of the indispositions against Nature, do propose mixed or compounded Indications. Now the aforesaid complications are made after three manner of wayes, that is to say, disease

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disease with disease; as a Wound with an Apo-stume or fracture of the bones. Disease with cause, as an Ulcer with fluxion. Disease with symptome, as a wound with paine, or with a Fluxe of blood. Or all things against Nature together, as disease, cause, and symptome.

Now that you might know how to handle artificially all these complications, you must followe the Doctrine of *Galen*, in the 7. of his Method, who exhorteth vs to consider the complicated afflictions, as that which is the most vrgent, the cause; and that without the which the disease cannot be taken away. And these are things of great impottance in the curation of all diseases; & herein the Empericke becommeth wauering and vns-  
The Vrgent  
the cause, &  
the necessity  
certaine, without counsell or resolution, not knowing with which of the affections hee ought first to begin withdrawall for the cure. But the judicious Physitian to the contrary is directed by those three golden words from the which depend both the order and method in all such complicated dispositions and afflictions. The symptomes inasmuch as they are symptomes, do not give any Indication at all, neyther do they charge or alter the order of the curation. For in taking away the disease, which is the cause of the symptome, they are remoued, because they depend thereon, as the shadow doth the body: although oftentimes we are constrained to leaue the disease in an irregular care, to come vnto the accidents of the Disease; the which if they are vrgent, doe holde the place

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place of the cause, and not properly of the symptomes.

The vse of  
Indication.

To conclude, all the sayde Indications are but to attaine to two endes, that is to say, to restore the part in its naturall temperature, and that the blood offend not neyther in quantity nor quality. That being done (as saith *Galen*) nothing will hinder neyther the regeneration of the flesh, nor the vniōn of the vleer. But sometimes it is not possible to put the aforesayde Indications in execution, either because of the greatnessse of the wound, or the excesse and disobedience of the Patient, or because of some other indisposition which hath happened through the ignorance of the Chirurgian, or from the ill or disordered application of the Medicines. And therefore by meanes of these things, there followeth great paines, Feauers, Apostumes, Gangrenae (vulgarly and abusively called *Eftiomenes*) Mortifications, and oftentimes death it selfe. Moreouer those that receyue wounds by Gunshot, do eyther dye, or else remaine maymed and defective all their life after.

**CHAP:**

CHAP. X.

*How the Chirurgian shall proceede in the handling  
of the saide wounds.*

IN the beginning therefore, great regard ought to bee taken to mittigate the payne as much as may be, by repercussing the defluxion, by ordaining a dyet according to the six vnnatural things, and they: annexed, by auoyding all hot and sharp things, and by diminishing or altogether prohibiting wine, lest it should heat, subtilize, & make the humors flow to the part. His maner of liuing, ought in the beginning to be very slender, thereby to make revulſion. For when the stomacke is not filled ſufficiently, it attracteth from all partes vnto it: by meanes whereof, the externe parts having affinity therewith, do remaine empty. And this is the reason wherefore the patient ought to keepe a slender dyet in the firſt dayes of his hurt. *Venus* is altogether contrary vnto them, inasmuch as it enflameth the humors and ſpirits more then any other motion: and for this cauſe it maketh the wound to bee much enflamed and ſubiect to defluxion. And it wil not be amisse in the beginning if there be a ſluxe of bloode, to let it moderately flow, thereby to diſcharge the body and the part: and where it hath not ſufficiently flowed, you ought the day following to vſe revulſive Phlebotomy, and to take away according to the fulneſſe and vertue of the patient. You neede not feare of

Phlebotomy  
necessa-  
ry in wounds  
made by  
Gunshot.

M

ma.

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making of auerſion of the blood toward the **Noble** parts. For (as we haue ſaide) there is no veno-  
mous quality therein; neuertheleſſe it is general-  
ly obſerued, that ſuch wounds at that instant doe  
 Causes why ſend forth but little bloode, because of the great  
 there hap- contuſion made by the Bullet and the vehement-  
 neth not al- e of the agitated aire, which doth repulſe and driue  
 wayes an He- back the ſpirits into the inward parts, and into the  
 mor. thogit. circumiacent parts of the wound, as we haue ſayd  
 before.

This is ordinarily knowne in thoſe who haue  
 had a member carried away with a great ſhot: for  
 at the instant of their hurts, there iſſue but little  
 blood forth of their wounds, although that there  
 be many great Veines and Arteries broken & di-  
 lacerated. But a certayne time afterwards, as in the  
 fourth, fiſt, or ſixt day, and ſometimes later, the  
 blood will yſſue foorth in great abundance: by  
 meanes of the returing of the ſpirits, and natural  
 heate into the affected parts. As for the purga-  
 tive Medicines. I leauē them to the Doctors. Ne-  
 uertheleſſe in their abſence, it is neceſſarie to **re-**  
**laxe** and moue the belly of the patient at the leaſt  
 once a day, either by art or by Nature, which ſhal  
 be done rather by Clifters then Purgations, espe-  
 cially in the fiſt dayes, because that the agitation  
 of the humors in that caſe is to be ſuſpected, leaſt  
 they ſhould make a greater defluxion to the woun-  
 ded part. Neuertheleſſe *Galen* in the fourth booke  
 of his Method. Cap 6. ſpeaking of the Indicati-  
 ons of bleeding and purging, where he ſaith; That  
 bleed-

bleeding and purging are necessary, according to the greatness of the disease, althogh that the patient bee without repletion or cacockyng, or euill constitution.

Paine ought to be appeased, according to the intention and remission thereof, which to do if it happen that there is an inflammation, you may apply thereto as a locall medicine *Vnguentum natrarium*, composed with the iuyce of Plantane, Housleke, and Night-shade, and such like. Also the Emplaister *Diachalestes* described by Galen in his first Booke of the Composition of Medicines according to their kinds, chap. 6. dissolved vwith the oyle of Poppy, of roses, and a little Vinegar, and it is of no little efficacy for that purpose. Also *vng.de bolo*, and many others of that facultie, if they be not properly *anodins* (for all Anodins are hot in the first degree, or at the least agreeing in heate with our bodies, as saith Galen in his first Booke and 19.chap.of Simples) and the aforesaid medicines are cold, yet not so much as that thereby they should become Naucotick, the which are cold in the fourth degree. But to bee short, the aboue-mentioned in the aforesaid case, do appease the paine very commediouly, because they are contrary vnto hot distempers, and doe prohibite the defluxions of humors, which oftentimes are sharpe and chollerick, which are more apte to flow then the cold, and do cause a greater pain. After the vsage of repercussives, I do meruellously approue this Cataplasmie.

Hot humors  
are apter to  
flowe then  
cold.

M 2

R. Mi.

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R. Mice panis infusæ in lacte vaccino  $\frac{1}{2}$  j. & bul-  
liant parum addendo olei violacei & rosa. an.  $\frac{3}{4}$  iij  
vitellos ouorum numer quatuor. pul. rosar. rubr.  
florum chamezel. & melior an.  $\frac{3}{4}$  ij. far. fabar. &  
hord. ana  $\frac{3}{4}$  j. misce, & fiat cataplasma secundum  
artem. Or for a Medicine sooner prepared, thou  
must take of the crummes of bread, and so let it be  
a little boyled with Oxycrat, and the Oyle of Ro-  
ses.

As concerning the curation of such Apostumes  
which happen in these Woundes, it is expedient  
that their Medicines should bee diuersified accord-  
ing to their times. For some medicines are pro-  
per in the beginning, others in the augmentation,  
and others in other times; as hath beene suffici-  
ently declared by *Galen* in his thirde Booke and  
ninth chapter of the faculty of Medicines. And  
by *Guido* in the curation of Apostumes; and by  
those that haue written thereof. And where Na-  
ture shall incline to suppuration, it is most need-  
ful to attend her, as sayth *Hippocrates*: for the Phy-  
sitian and Chirurgeon, are but the ministers and  
helpers of Nature, to ayde her in those things  
wherunto commodiously she enclineth.

Aphor. 21.  
Booke 2.

CHAP.

CHAP. XI.

*Of such Bu'lets which haue remained in certain parts  
a long time after the Curation of the wounds.*

Sometimes the Bullets of Lead haue remayned  
a long time within the members, as for the  
space of seuen or eight yeeres and more; there fol-  
lowing neuerthelesse not any euill accident, nor  
hinderance of the consolidation of the wound: &  
they haue continued there so long, till they haue  
bene thrust forth by the expulsive vertue, discen-  
ding downe by meanes of their grauity and hea-  
uinesse into the inferiour parts, in the which they  
will manifest themselves, and then ought to bee  
drawne forth by the operation of the Chirurge-  
an. Now this continuation of them so long in the  
body, without any corruption or euill accident (in  
my opinion) doth proceede from no other thing  
but from the matter of the Lead, whereof the sayd  
Bullets were composed. For so it is, that Lead  
hath a certain familiarity and agreement with na-  
ture, especially of the fleshy parts: euen as we see  
by ordinary experience, which teacheth vs, that  
Lead being outwardly applyed, hath the vertue to  
close and cicatrise old vlcers: but if the bullet were  
of stone, of Iron, or of any other mettal, it is a most  
assured thing, that they cou'd not abide long in  
the body, because that the Iron Bullet would rust,  
and thereby corrode the part where it lyeth; from  
whence would ensue many pernicious accidents.

An adver-  
tisement.

M 3

But

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But if the bullet be in the neruous or noble parts, although it were but of Lead, it could no: continue there long, wi: hout bringing with it manie great inconueniences: therefore when it cometh to passe that it remaineth a long time in the body, it is in the fletchy parts, and in bodyes of good temperature and habitude, otherwise it cannot stay there, without inducing pain and many other accidents, as hath bene sayd.

### CHAP. XII.

*Of the great Contusions and dilacerations made  
by the Bullets of great shot.*

**M**oreouer if the Bullet of a great peece of Or-  
dinace do strike against any member, it (for  
the most part) doeth eicher carry it away, or else  
breake and batter it in such a fashion, through the  
great vehemency thereof, that it shiuereth and  
breaketh the bones, not onely of those which it  
toucheth, but also of those that are farther off, be-  
cause that the bone being hard, doth in some sort  
make a little resistance, by which meanes the Bul-  
let hath the greater force against it. That this is  
true, wee see ordinarily that the saide Ordinance  
hath much more action & effect against a strong  
wall, then against a rampire of earth, or a 'A ool-  
sacke, and other soft things, as we haue said here  
before. Therefore, it is no meruaille if after such  
wounds made by Gun-shot, there follow dolor,  
inflammation, feauer, spasme, Apostume, Gan-  
grene,

grenas, Mortification, and oftentimes death. For Causes of  
perillous ac-  
cidents in  
woundes  
made by  
Gunshot. those great contusions of the Nervous parts, the breakings or vehement concussions of the bones made by the saide Bullets, do cause greeuous accidents, and not the combustion and venenositie of the powder, as many doe thinke, not considering the matter of the sayd powder: the which (as I haue said) it is not venomous; for if the wounde bee made in a fleshy part, without touching the Nervous parts, it onely required such remedies for their curation, as all other contused woundes do, without they degenerate (as I haue saide here before) into an euill quality, through the corruption of the aire; the which cautes (not many yeeres since) the wounds that were then receiued to bee much altered and corrupted, with a great putrifaction in the fleshy and bony partes. From the which (as I saide before) were eleuated many vapors into the Braine, the Heart, and the Liver: from whence proceeded many euill accidents, & death to the most part.

## C H A P. XIII.

*Of the meanes which ought to bee observed to rectifie  
the aire, to roborate the noble parts, and to fortifie  
the whole body.*

AND therefore the Chirurgian ought to haue a great care to administer all things which haue power to rectifie the aire, and to roborate and strengthen the noble parts: also to fortify the whole

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whole body, which shall be done by the ensuing things; which are to be administred both inwardly and outwardly. For the Patient shall take inwardly in the morning, three houres before hee eate any thing, of the *Tabul. Diarrhodon abatis, or de auro. ros. de trias ant. diamoschi, de Latificans Galeni*, and other of the like vertue. Outwardly shall be vsed *Epithemes* vpon the Region of the heart and Liver, a little more then luke-warme, applied with a peece of Scarlet, or Sponge, Felt, or a fine linnen cloth. This following may serue for a form vnto euery Chirurgian.

R. Aquæ rosatarum 3 iiiij. Aquæ buglo. aceti boni, an. 3 ij. Coriand. præparat. 3 iiiij. Garyophyllor, Corticum citri, an. 3 j. Santali rub. 3 s. corall, vtriusque 3 j. camph. 3 j. croci 3 s. pul. diarrho. abatis 3 ij. theria. & mithridat. an. 3 s. pulu. florum camomillæ, melilio ana 3 j. misce & fiat Epithe-  
ma.

Moreover, you ought to giue the patient odo-  
riferous and refrigerant things to smell to often,  
to roborate the animall faculty, as this which fol-  
loweth. R. Aqua rosaceæ, aceti boni, ana 3 iiiij. ga-  
ryophyl. nucis mosca. cinamoni conquatassorum,  
therica Galeni ana 3 j. And therein let a Hand-  
kercher or sponge bee dipped, which the Patient  
shall aiways hold to his nose. He may vse also an  
aromaticke Apple or Pomander for the same in-  
tention, as is this.

R. Rosar. rubrar. violar. ana 3 iiiij. baccarum  
myrrhi & Iuniperi, Santali rubr. ana 3 ij s. benioin  
3 ij.

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5 i. camph. 3 ij. fiat puluis. Postea R Olei Ros. & nenuph. ana 3 3 styracis calamitæ, 3 ij. aquæ rosarum quantum satis est, liquefiant simul cum cera alba quantum suffic. fiat Ceratum ad comprehendendos supra dictos pulueres cum pistillo calido, & fiat pomum. Another.

R Radic. ireos florent. maioranæ, calami ariomatici, ladani, benioin, rad. cyp. garyoph. ana 3 ij. mosci g. iiiij. fiat puluis, et cum gummi tragachan. quantum sufficit, fiat pomum.

Another.

R Ladani puri 3 ij. benioin 3 3. styrac. calam 3 vi. ireos Florentiæ 3 3 garyophil. 3 iiiij. maiora, rosarum rubrarum calami aromat ana 3 3. pulueri- sentur omnia, et bulliant cum aqua rosarum quantum sufficit, et colentur, et colata liquefiant cum cer. alb. quantū sufficit, styracis liquidæ, 3 j. fiat ad modum Cerati, comprehendantur per pistillum, addendo moschi 3 j. fiat pomum.

In like manner you may apply of your Frontals to roborate the animall faculty, to prouoke sleepe, and to mitigate and ease the paine of the head, as this following. R aqua rosaceæ 3 ij. Olei rosar. et papaueris, ana 3 j 3. aceti boni, trochisco- rum de Camphora 3 3. fiat Frontale. The way to apply it is thus. Take a linnen cloth, and folde it vp fife or six times double; that done, dip it in the aforesaid commixtion, and so apply it on the Temples a little warme, which being dry ought to bee renewed againe. Herein note, that in this case the head ought not to be bound hard, lest that therby

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the

Hyp.lib.de  
vnln.Cap.

the free pulsation of the arteries of the temples be hindred, whereby the paine of the head might bee auginentr'd. There are many other exteriour remedies whereby the aire might be corrected; as to make a good fire in the Chamber of the patient with the wood of Iuniper, of Bayes, vine branches Rosemary, of Floure de Luce roots: also by things sprinkled in the chamber, as water and vinegar; if the patient be rich, Damaske water heerein is ver-ry proper. Or this which followeth;

R Maioranæ, menthæ, radicis cyperi, calami aromatici, saluiæ, lauandule, fœniculi, thymi, stœchados, florum camo. melil. satureiæ, baccarum lauri et Iuniperi an.m.ijj. pulu. garyoph. et Nucis moscatæ an. 3 j. aquæ ros. et vitæ fl. ij. vini albi bo-ni et odoriferi fl. x. bulliant omnia in balneo Ma-riæ ad vsum dictum. Moreouer perfumes may be made to perfume the saide Chamber, as these fol- lowing. R Carbonis salicis 3 viii. labdani puti 3 ii. thuris masculi, lini et baccarum Iuniperi ana 3 j. xylaloes, benioin, styracis calamitæ an. 3 fl. Nucis moscatæ, santali lutei ana 3 iij. garyoph. styracis li- quidæ ana 3 ij. zedoariæ, calami aromatici ana 3 i gummi tragach. aqua rosæ. soluti, quod sit satis:fi- ant auiculæ Cyprinæ, seu suffit, qua forma libebit. As for the putrifaction and cor- ruption of the bones, wee will speake thereof hereafter more amplie.

CHAP.

## CHAP. XIII.

*Memorable Histories.*

Oftentimes the aforesaide wounds are accompanied with many indispositions, as cedema-  
teus tumors, fracture of the bones, and the like, as  
(for the yong Chirurgians sake) I will relate this  
historic for an example, of the hurt of the Earle of  
*Mansfelt*, Gouernour of the Dutchy of *Luxem-  
bourg*, Knight of the order of the King of Spaine,  
who was hurt at the battell of *Moncontour*, with a  
Pistoll shot vpon the ioynt of his right arme or el-  
bow, which fractured the bones; whereof there  
were many that were fractured in such small pec-  
cесes as if they had bene broken with a Mallet, be-  
cause he receiued the blow so neere at hand, and  
through the violence and force of the blow, there  
hapned vnto him many accidents; as extreme do-  
lors, inflammation, feauer, an cedemateous Tu-  
mor; a flatous or windy tumor all the arm ouer,  
yea euen to the ends of the fingers, together with  
a preparation vnto a Gangrena. Which to pre-  
uent, and also the totall mortification therof, M.  
*Nicholas Lamberts*, and M. *Richard Hubers*, Chi-  
rurgeons in ordinary to the King, had made ma-  
ny and deepe scarifications. Now by the Com-  
mandement of the King, I was sent for to come  
vnto the aforesaide patient to dresse him: where  
being arriued, seeing the aforesaide accidents to  
be accompanied with a most fætide putrifaction,  
we were resolued to apply on the saide scarifyed  
parts.

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parts, of *Ægyptiacum* fortified and dissolved in vineger and *Aqua-vitæ* and such remedies which are proper for the cure of *Gangrenaes*. Ouer and besides these accidents, the saide Lord had a flux of the belly, by the which he expelled of the sanie quitture which came from the *Vlcers* of his arme. This many will not beleue, forasmuch (as they say) that if it should descend by the bely, it follo- weth of necessitie that the saide matter should be mixed with the blood. Also that in passing neere vnto the heart, and through the *Liuer*, it woulde cause many accidents, yea death it selfe. Neuer- theleſſe I doubt not but that I haue ſufficiently anſwered all these Obiections, how and in what manner it is done in my booke *Of the ſuppreſſion of the vrine*; wherefore, if any deſire to know the reaſon thereof, he may haue recourse to the ſaide Booke.

In like manner, the ſaide Lord fel of ſentimes into a *Syncope*, by reaſon of the putrifid vapours which ascended vp from the *vlcers*, which vapors by the *Nerues*, *Veines*, and *Arteries*, were com-

Aqua-vitæ with a little Treacle re- tal'de pre- fende the spirites, and comforteth the vital fa- culty.

For which cauſe I gaue him ſometimes a ſpoonfull of *Aqua vitæ* to drinke, wherein I diſſolued a little Treacle. Mounſieur *Bellanger*, Phyſitian in ordinary to the King, and Mounſieur *le Bon* Phyſitian to my Lord the Cardinall of *Guize*, men of vnderſtanding, and expert in Phyſicke and Chi- rurgerie, imploied all their ſkill (as muſh as was poſſible) to reſiſt his Feauer, and other accidents which

which hapned to him. As for the Oedemateous and flatulent tumor which wholy occupied al the arme, I applied thereon staples wet in Oxycrat, with salt, and a little Aqua-vitæ, and other remedies, which shortly shall bee shewed. Then with double clothes I sewed them vp as strong & han- somly as I could possible, that is to say, as much as the said Lord could indure it. This compressi- on serueth both to containe the fractured Bones in their places, and also to expell the sanies from the vlcers, and to repel the humors towardes the center of the bodie. And when the binding and rolling of his arme was omitted, the tumour did increase in such manner, that I verie much feared the natural heate of his arme would be suffocated and extinguished. Now for to make anie other manner of Ligature it was altogether impossible, because of the extreame paine that hee felt, if his arme had bene remoued never so little. There hapned vnto him also many Apostumes about the ioynt of his elbow, and in other partes of his arme: wherefore to give issue to the Sanies, I made him manie incisions; all which the saide Lorde indured willingly, telling me that if two would not serue, make three, yea four; such was the desire that he had to be out of his paine, and to be cured. Then (smiling to my selfe) I told him that he deserued to be hurt, and not these tender and delicate persons, who wil rather suffer them selues to rot, yea to indure the paines of death, then to indure anie necessary incision to be made

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for the restoring of their healths.*

Now, to shorten his cure, he vſed of a Vulnariſtie potion, and ſomtimes there was incerted with a Syringe into his vlcers of *Ægyptiacum* diſſolued in wine, or elſe in the ſaide Potion, or rather *Mel Rosaru:n* inſtead of the *Egyptiacum* to mundifie them, and to correct their putrifaction; and other remedies which would be too tedious here to recite: and among others, of the powder of Alome combuſted, to dry vp and conſume the high and ſpongeous fleſh. Also for the mundification of the ſaid vlcers, I vſed a long time nothing but dry Lint, which was as much in quantity euerie dressing, as a Mans firſt. And on a day, ſeeing that he was without paine, and that the fleſh began to regenerate, I told him that now he began to bee wel: then he ſaide to me laughing, I know it ve-ry wel, for now I ſee you doe not vſe the fourth part of the Lint you did before. In the time of his curation, I protest that I tooke from him more then threescore peeces of bones. Of the which, ſome were as great as my finger broken in a verie ſtrange figure, yet notwithstanding the ſaid Lord (thankes be to God) was perfectly cured: onely it remaineth that he cannot, nor neuer will, bow or ſtretch forth his arme.

Historic.

Mounſier *de Baffompierre*, Collonel of two hundred horſe, the day of the aforesaid battaile, was hurt with ſuch another ſhot, and had a great part of the aforesaid accidents: whom alſo I drefte vntill his perfect curation, which (thankes bee to God)

God) he attained. True it is, that hee continueth impotent as the other Lord is.

After that I had cured the aforesaid Lords, the Earle of Mansfelt, and Bassompierre, I was commanded by the King to imploy all my diligence in the curation of *Charles Phillipes de Croy*, Lord of *Hauret*, Brother to my Lord the Duke of *Ascot*, neare to *Mons* in *Haynaule*, who had alreadie kept his bed seauen months and more, by reason of a wound that he receiued by a Musket-shot, three fingers aboue the knee, whom I found with these accidents following; namely, extreame paynes, a continual Feauer, cold sweatings, losse of sleep, that part situate vpon *Os Canda*, vlcerate in compass as much as the palme of my hand (because he had lyen so long time on his backe) hee tooke not any rest day nor night, with losse of appetite of meate, but dranke inough. Hee was somtimes surprized in his bed with the fits of the Epilepsie, & had oftentimes a desire to vomit, with a continual shaking, insomuch that he could not bring his hand to his mouth without the helpe of another; he fel oftentimes into a Syncope or fainting of the heart, because of the putrified vapors that were communicated to the stomacke and the noble parts, by the Veines, Arteries, and Nerves: the which we eleuated from his vlcers, and from the corruption of the bones. For the Thigh-bone was fractured and shiuered both long wise and ouerthwart, with diuers splinters; whereof some were already separated, others not. Hee also had

Meruellous accidents.

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an hollow vller neere vnto the groine, which ended about the middle of the thigh. Moreouer hee had other sinuous and caniculous Ulcers about the Knee. All the Muscles both of the thigh and legge were extremely tumified and imbued with a flegmaticke, cold, moyst, and flatulent humor, in such sort, that the natural heate was verie neere suffocated and extinguished. Seeing al these accidents, and the strength and vertue of the patient greatly decayed and abated, I was stroke with an exceeding sorrow, because that I was sent vnto him, and seeing little hope of recovery, for I feared greatly that he would die vnder my hands. Neuerthelesse, considering his youth, I had some final hope, for God and Nature bringeth sometimes such things to passe, which seemeth vnpossible to the Chirurgian.

God & Na-  
ture effect  
meruaulous  
things.

I then demanded of the saide Lord, if hee had a good courage: and told him likewise, that if hee would indure the making of certaine incisions, the which for his curation were very necessary, by that meanes his paines and his other accidents would cease. He answered, that he would willingly indure whatsoeuer I thought conuenient, yea, to the amputation of his legge, if I thought it necessary. Then I was verie ioyful, and presently after I made two Orifices to glie issue to the Matter that lay about the bone, and in the substance of the Muscles, wherby there yssued forth a great quantity. Afterwards, iniection was made with wine, and a little **Aqua-vitæ**, wherein there was dissolved

dissolved a good quantity of Egyptiacum, to correct the putrifaction, and to dissipate the loose & spongeous flesh, and to resolve and consume the ædemateous and flatulent tumor, and to ease his paines, to refocillate and fortifie the natural heat which was greatly prepared to be altogether suffocated, because the parts could not concoct nor assimilate the nourishment necessary for them, by reason of the great quantity of matter therein contained. His Chirurgeon, named M. *Anthony Mauler*, an honest man, of great experience in Chirurgery, dwelling at *Mons in Haynault*, and my selfe, we concluded to make him fomentations, with the decoctions of Sage, Rosemarie, Time, Lauander, Camomile flowers, Melilot, and red Roses boyled in white wine: and so a lexieue made with the ashes of oake, a little portion of vinegar, and an handfull of salt. This decoction so made, hath vertue and power to subtilize, attenuate, incise, resolve and to dissipate the colde, grosse, and Flegmaticke humor, and to roborate the wounded parts. The said fomentations were vsed a long time together, to the end that the resolution may thereby be made the greater. For being applyed long together, it resolved more, by liquifying of the humour which was in the profound partes: whereas otherwise it would haue but rarifyed the skin, or the fleshy parts of the Muscles.

And for this intention we made him many frictions with hot Kerchiefs in all manners, that is, from the higher parts downewards, and from

Galen in  
the 6 of the  
Method.

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the left side to the right: also circular wise, and this a long space together. For the breefe Frications, I meane those that are made in short time, maketh attraction, but resolueth nothing at all. In like manner euery other day, there was applied all about his Thigh and legges, euen to the sole of his foot, of Brickes heated and sprinkled with vineger and white wine, with a little portion of aquavitæ; and through this euaporation, you shoulde perceiue many Aquosities to proceed foorth of the pores of the skin by sweating, whereby the tumor diminished, and the naturall heate was reuoked. Also there was applied compresses or Boulsters on the tumified parts, dipped and infused in a le-vine made of the ashes of oake; with the which, was boyled Sage, Rosemary, Lauander, Salte, Aquavitæ and Cloues; and Ligature was made with such dexterity as the patient could well endure it: and to so good purpose, that if it had bin but one day omitted, wee might easily perceiue the tumor. Also there was applied good big Bolsters on the bottome of the sinus of the vlcers, to deppresse and expell away the Sanies. And sometimes for the better accomplishing thereof, the orifices of the vlcers were kept open with hollow Tents. Somtimes also to resolute the tumor, there was applied a Cataplasing thereon made thus:

R. Far.hord.fabar. orobi an. 3 vj. Mellis com. Terebinth.an.3 ij. pul.flor.Camomel. Melloliti, rosar.rubrar.an.3<sup>ss</sup>. pul.radic.ireos, florent.Cypori Mast.an.3 ij. oxymellis simplic, quantum suffici-

ciat fiat cataplas. ad formam pulvis satis liquidæ.

In like manner, wee made vse of the Emplaisters The Emplas-  
ster of Vigo  
ster of Vigo  
is redolucive. of *Vigo sine mercurio*, which helped greatly to ease his paines, and to resolute the saide Tumor. Neuerthelesse it was not applyed vntil the parts were first heated, by the meanes of fomentations, Frications, and evaporations, or otherwile that Emplaster could neuer haue wrought that effect thorough the cold distemperature of the parts. Now for the Mundification of the vlcers there was applyed remedies proper thereunto, chaunging and altering them according as wee found occasion. Also the *Catagmaticke* powders to separate the bones, and to correct their putrifaction were not spared him: hee vsed also for the space of fifteene dayes of vulnary potion.

I may not here omit to speake of the Frications which hee suffered euery Morning vniuersally ouer the whole body, which was greatly extenuated and weakened both by reason of his dolors, & other accidents (as we haue saide) and also for the want of exercise. The said Frications did reuoke and attract the spirits and the blood, and resolued such fuligenous humors which were detained betwene the skin and the flesh. And therefore the parts were afterwardes better nourished and refreshed; so that so soone as his paines beganne to passe away, as also the Feauer, he began to sleepe well, and to haue a good appetite, and therefore we caused him to vle good Meates, and to drinke good wine and good beere; & we brake our fasts

The benefit  
of vniuersal  
Frications.

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together, hee and my selfe euery Morning, with good nourishing Brethes: and by this meanes he became fat and lusty, and perfectly cured. Onely it remaineth that he cannot wel bend his knee.

Now the reasons that mooued mee to recite these Histories, is onely to instruct the yong Chi-  
rurgian to the practise thereof, and not that anie  
glory or praise might be attributed to me: but to  
restore them to God, knowing that all goodnesse  
proceedeth from him as from an euerlasting foun-  
taine, and nothing of our selues. And therfore we  
ought to giue thankes vnto him for all our good  
workes, humbly beseeching him to continue and  
augment them more and more in vs, through his  
infinite goodnesse.

## CHAP. XV.

### *An Apologie touching wounds made by Gun-shot.*

A just occa-  
sion of the  
Author for  
his Apology

There hapned into my hands not many dayes  
past, a certaine Book written by a Physitian;  
wherin he very openly contradicteth that which  
I haue written heretofore, as concerning wounds  
made by Gunshot and their curations. I protest  
that if there were no other cause, or that there  
were no other interest hecrein then the contem-  
ning of me and my Book, I would let these things  
alone, and passe them away vnder silence; know-  
ing well, that all auswers and replies whereby we  
strive to stop the Mouths of euill speakers, do of-  
ten-

tentimes rather give them a further occasion of speaking then otherwise; and that there is no better way to stay such Controuersies, then by not answering one word. Euen as we see that the fire is extinguished when the combustible matter ceaseth, by taking away the wood. But when I did consider the euident danger that many wold fall into, if they came to follow those rules and instructions that the saide Physitian setteth downe for the cure of the saide wounds, I therefore thought it my duty to preuent this euill, and to hinder it as much as lieth in mee, in regard of my profession. The which beyond that common affection which all men owe to the publike weale, doeth binde me particularly to this, in such manner, that I could not with a good conscience become deaf and dumbe, when both my particular and gene-  
rall duties, do binde and constraine me to speake. This therefore was the true cause that did solicite me to make this Apologie, rather then any passionate or boyling desire in me, to haue my reuenge of him who hath truly assaulted me.

Now in this booke, he pretendeth to despise & contemne the application of suppuratiue Medicines, as Bassilicon, and others of that nature. Also of those that are sharpe, as Egyptiacum, and such like. For (saith he) such remedies haue beeene the cause of the deatthes of an infinite number of men, whereunto they haue beeene applyed; yea, although that their wounds were but superficiall, and in fleshy parts. And that heerein the counsell

Bassilicon li-  
quified into  
an oyle, is  
proper in al  
wounds that  
require sup-  
puration.

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of *Hippocrates* ought not to be followed, who saith, that all contused wounds ought to be brought to suppuration, because (sayth he) this is a new disease, and vndeclared to the Ancients, and therefore it requireth new remedies. Also that thunder and the violent effect thereof, ought not to bee compared to the reports of Artillery.

Now seeing that he striueth to contradict all that I haue written before in my booke of wounds made by Gunne-shot, Arrowes, and Dartes, I am constrained for my defence, to repeate somewhat of that which I haue heeretofore divulged, to reprove all these points (as I hope) one after another.

First of all, that suppuratiue Medicines are not proper in such wounds, it is against reason, authority, and experience: for every one knoweth that the Bullet being round and massie, cannot make any entrance into our bodies, without great contusion and bruising; the which cannot bee cured without suppuration, according to the authority not onely of *Hippocrates*, but also of *Galen*, and all other Authors both Ancient and Moderne. And what doth it serue him to call such woundes, to derogate from the saying of *Hippocrates* whom we hold to be the Father, Author, and Founder of the Lawes of sacred Medicine, which are worthy of all esteeme and praise aboue all others, because they are not subiect to change, as all others that are established by Kings and Princes, neyther are they tied to the prescription of times, nor

the

the customes of Regions. Therfore if I haue herein followed the *Hippocratick Doctrine*, which is alwayes found true and st.able, I perswade my self to haue done well. And therein I haue not bene in that conceit alone; for Mounſieur *Botall*, Phyſitian in ordinary to the King, and Mounſieur *Toubert* Phyſitian to the King alſo, and his Lecturer in ordinary in the vniuersity of *Mont-pellier*, men well experimented both in Phyſicke and Chirurgery, haue lately written of this matter. Com-mending, and commanding the application of *Baſtions* & other ſuppuratives in the beginning of ſuch wounds.

These men, because they haue followed the warres, haue ſene more wounded by ſhot, then our Phyſitian hath done all his life time. As for experience, there is an infinite number of other good Chirurgians, and greatly experimented, who haue and do vſe of theſe remedies in the beginning to bring theſe wounds to ſuppuration, if there be no Indication that cloth contradict it. I know moreouer that an Empericall Chirurgean, a neighbour of his called *Doubles*, hath many and ſundry times done meruailous cures, by applying onely in theſe woundes a ſuppuratiue Medicine, composed of melted Bacon, the yolke of an Egge, terebinthinae, with a little Saffron, and this he held for a great ſecret.

Doublet an  
Empirick.

There was alſo another at Thurin in the yeere 1538. (I being then in the ſervice of the late Mar-ſhall of *Monſeian*, Lieutenant Generall of the King

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King at *Piedmont*) who had the report aboue all the Chirurgeans in those partes, for his excellent curing of those woundes with *Oleum Catellorum*; the description whereof, I procured of him thorough my earnest intreay. This oyle is of power to lenifie and appease the paine, and to suppurate those woundes beeing applied a little more then luke-warme, and not boyling hote, as manie will. This an infinite number of Chirurgeans haue vsed, after that I had described it in my Booke of wounds made by Gun-shot with good and happy successe. As for that which he writeth against the Vnguent *Egyptiacum*, certainly I beleue that he abideth in that opinion and heresie alone, because there hath not bin yet discouered a more singular remedie to correct and preuent the putrifaction which happeneth most commonly in those wounds, the which doe degenerate often-times into virulent, corrosive, ambulatiue, and malignant Ulcers, casting forth a stinking Sanies, whereby the part falleth into a *Gangrena*, vnlesse it be preuented by *Egyptiacum*, and other sharpe medicines. And for this cause they haue bene very much approued by the saide *Botal* and *Soubres*, and of all good Chirurgeans; yet neuertheles our Physician maintaineth that they are venomous, because (saith he) that being applyed in woundes by Gunne shot, they haue beene the cause of the death of many persons; which is a thing so absurd and against reason, that I will leaue the resolution thereof to the Towne-Barbers, who I am sure are of

Answer to  
the virulency  
of *Egyptiacum*

of skill sufficient to confute the grossenes of that imputation; or if their want of iudgement be such that they cannot, yet the consideration of euerie one of the ingredients of the sayde *Ægyptiacum* would suffice to shew, that it is so free from anie venomous quality, that it doth resist, & is directly contrary to all sorts of poisons and putrifactions which may happen in the fleshy partes, by reason of any wound or vller.

He saith moreouer, that the disposition of the aire cānot be the cause to infect or restore wounds more daungerous at one time then at another. Herein also he is of this opinion alone. But if hee had well read and vnderstood *Hippocrates*, he had not so lightly contemned the constitution of the seasons, and the infection proceeding from the aire not simple and Elementary (for being simple, it neuer acquireth any putrifaction) but by addition and cominxtion with other corrupted vapors, as I haue written in my treatise of the Pestilence: For inasmuch as the aire that doth incompassē & inclose vs, is perpetually necessary vnto our liues; it followeth therefore, that according to the indisposition thereof, our bodies also altered in manie and sundry manners, because we do draw it continually by meanes of the Lungs and other partes, seruing vnto respiration; and also by the pores & euery little inuisible hole throughout the bodye, and by the Arteries dispersed in the skinne. And this is done both for the generation of the spirite of life, and also to refresh and foment our naturall

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heat. For this cause, if it be immoderately hotte, cold, moist, or dry, or otherwise distempered, it altereth and changeth the temperature of our bodies vnto its owne quality. This is cleerely seene: for when it is infected by the putrified and Cadauerious vapors produced from a great multitude of dead bodies that haue not bene buried soone enough; as of men, of horses, and other beasts. As it happeneth after any battell, or when many men haue perished by shipwracke, and haue bene cast ashore through the violence of the waues. As for example, the memory is yet fiesh, of the corruption of the aire which proceeded from deade bodies at the castle of *Pene*, situate vpon the riuier of *Lot*, in which place, in the yeare 1562. in the moneth of September, whiles the first troubles hapned about Religion, there was a great number of dead bodies fell into a pit of an hundred fathome deepe, or thereabouts: from whence, two moneths after, there was eleuated such a stinking and venomous vapor, which dispersed it selfe ouer all the countries of *Agenois*, and the neighbouring places within the compasse of thirty miles round, that thereby many were infected with the pestilence, whereof we need not wonder; for the wind blowing, and driving the exhalations and corrupted vapors from one countrey to another, doeth infect them with the saide pestilence.

In like manner, the euill constitution of the aire, whether the cause be manifest or hidden, may make wounds to become putrified, alter the spirits and

and the humors, and cause death. This therefore ought not to be attributed vnto the woundes, because that they which are hurt, and those that are not, are both equally infected, and fall into the same inconueniences.

Mounsieur *d'Alechamps* in his French Chirurgery, speaking of these things which hinder the curation of Ulcers, hath not omitted, that when either the pestilence, or any Epidemicall Disease reigneth in any Province through the corruption of the Aire, it maketh Ulcers become incurable, or of most difficult curation.

The good old man *Gusdo*, in his Treatise of Ulcers hath also writ, That the wounds of the heade were more harder to cure at *Paris* then at *Auignō*, and that the Ulcers of the legges were more difficult at *Auignon* then at *Paris*, forsoomuch as at *Paris* the aire is cold and moist, which is a contrarie thing, especially to wounds in the head. Likewise in *Auignon*, the heate of the aire doe liquefie and subtilize the humors: and therefore, more easilie and in greater abundance do the humors fall into the Legges, whereby the curation of the Ulcers in those partes, is more difficult at *Auignon* then at *Paris*. But if any one alledging experience shall say the contrary, that the wounds in the head are for the most part mortall in hot countreyes: To him I answere, that that proceedeth not from the aire, as it is more hot and dry, but rather because of some superfluous humidity and euil vapor communicated with the aire, as in the places about

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*Prouence, and of Italy neere vnto the Mediterrene-  
an sea. Now, there is not a Chirurgeon of so little  
vnderstanding, that knoweth not but if the aire be  
hot and moyst, the wounds doe easilly degenerate  
into a Gangrena and putrifaction. As for experi-  
ence, I wil give him a familiar example. Wee see  
that in hot and moyst weather, and when the Sou-  
therly winds blow, that flesh doth putrifie in lesse  
then two houres, though it were neuer so lately  
killed, in such sort that Butchers in those times do  
kill no meate but euon as they sell it. Also there is  
no doubt to be made but that humane bodies doe  
fall into affections against Nature, when the qua-  
lities of the seasons are peruerterd through the euil  
disposition of the aire: as hath bene seene, that in  
someyeres, wounded persons haue bin most hard  
to cure, and oftentimes dyed of very smal wounds,  
what diligence soever the Phisitians and Chirur-  
gians could vse. The which I noted well at the  
siedge which was planted before Roan: for the cor-  
ruption of the aire did alter and corrupt the blood  
and humors in such sort, by the meanes of inspi-  
ration and transpiration, that the wounds became  
so putrid and fetide, that they sent forth a Cada-  
uerueous smell: and if it hapned that one day had  
bene omitted wherein they had not beene drest,  
you shall finde the next day a great companie of  
wormes in them, with a meruellous stench; from  
whence were eleuated many putrified vapours,  
which by their communication with the hart cau-  
sed a continual Fever, with the Liuer hinderance  
of*

of the generation of good blode, and with the Braine they produce alienation of the spirits, fainting, convulsion, vomitings, and by consequence death: and when their bodies were opened, you should finde Apostumes in many partes of theyr bodies full of a greene stinking Sanies, in such sort that those that were within the Town seeing these things, that their wounded persons coulde not be cured, saide that those without had poisoned their bullets: and they without saide the like of those within: and then perceyuing that those wounds did rather turne to putrifaction then vnto any good suppuration, I was constrainyd, and with mee the most part of all the Chirurgeans to leauie suppuratiues, and insted of them to vse the Vnguent *Ægyptiacum*, and other such like remedies, to prevent the said putrifaction & Gangrena, and other of the aforesaide accidents.

Moreouer, if the diuers courses of the heauens haue power and force to imprint a pestilence in vs thorough the influence thereof, why is it not possible that the like may be done in a wound, to infest it after many wayes? Experience it self giueth vs a good and sufficient testimony, not onely in hot weather, but also in winter. For we see that euery patient whether he be wounded, or otherwise disposed against Nature, are tormented more of their greeves when the weather is subiect to raine, then when it is faire weather. And the reason is, because the vapour and moyst aire, and southerne winds, do inwardly moue and agitate

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the humors which afterwards do discharge them-selves vpon the afflicted parts, & thereby increase their paines.

Our Physitian hath also written, that in the battels of Dreux and of S.Denis, which were fought in the winter time, there dyed a great number of men, that I confesse too; but I deny that it was by the application of suppuratiue medicines, or of Corrosives, but thorough the vehemensie of their wounds, and the disorder that the Bullets made in their members, whereunto the nature of the wounded parts helped greatly, and the temperature of the patient, but aboue all the cold. For the cold causeth wounds to bee of most difficult curation; yea, sometimes it causeth a Gangrena and totall mortification, as witnesseth Hippocrates. And if he had beene with me at the siege of Metz, he should haue seen many soldiers having their legges eschiomened by reason of the colde, and an infinit company of others that died of the colde, although they were not wounded at all. If he will not beleue this, I will but send him to the top of the Mount Senis in the winter time, where many haue lost their liues, and were benummed and frozen in a moment; witness the chappell of Transis, which from thence had that Name giuen it.

He hath in like maner calumniued me, because I compared thunder with Artillery. Truly it may be saide that they haue like effectes: for this Diabolical gun-powder doth such merueilous things that

that it is easie to proue a great similitude the one with the other. And first of all, we may compare the fire that we behold to issue forth of the Cannon to the lightning in this, because it is seen before the Thunder is heard, so is it with the other: and this happeneth, because the eare is not so quicke as the eye to receiue their obiects. Wee may also compare the dreadfullnes of the reports <sup>2 similitude</sup> of great Ordinance to that of Thunder. For when there is made any notable battery with great Ordinance, their reports are heard sometimes twenty leagues off, more or lesse, according as the windes carrieth the echo of their noise. The first reports are not heard so plaine, as those that follow; and the cause is, for that the multiplication of the reports following and succeeding one another, that which is nerest doth drine or thrust forward that which is next him, and that in like manner thrusteth forwards the other, and that other the other, vntill it commeth to our eares. In like manner the Bullets are carried by the force of the powder, with such an inestimable swiftnesse, that <sup>3 similitude</sup> they breake and batter all that they meeete with; yea, they haue more force against hard and vnresistable things then against soft things: therein also they do resemble Thunder, which shiuereth the sword in the scabberd, and yet the scabberd remaining whole, melting Siluer in a purse, the purse vnburnt. In like manner (as I haue said here before) hath bene seene many whom the Bullet hath never touched, yet neuerthelesse thorough the

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the impetuosity of the aire caused by the violence of the powder issuing out of the mouth of the canon; hath broke and shiuered the bones, without any manifest apperance of solution of continuuite in the flesh; yea, to haue battered and killed them out-right, as if it had beene with a thunder-clap.

4 similitude

Gunpowder also hath a stinking smell, senting of Brimstone; imitating therin that odour that continueth in that place where a Thunder-bolt hath lately falne; which smell, is not onely abhorred of men, but also all Animalles are therefore constrained to abandon and forsake their dennes and caues when it hath fallen neare thereunto: so great is that sulphurous stinke that it leaueth behind it.

5 similitude

But yet their similitudes is more manifested by the effects of the saide powder; the which beeing enclosed in a Mine, and conuerted into winde or aire by meanes of the fire that is put thereunto, it ouerwhelmeth peeces of earth as great as mountaines, breaketh and demollisheth strong towers, reuerseth mountaines ypside downe. This I haue already manifested by that history which I haue elsewhere written, which was that at Paris; there was seene not long since a sodaine disaster by reason of the powder in the Arcenall, which taking fire, it caused such a great tempest, that it made the whole Towne to shake, ouer whelming those houses that were neare thereunto, vncouering & vnglasing those that were further from the furie thereof.

Horrible ef-  
fects of gun-  
powder.

To be brefe, euен as the thunder doth massa-  
cre

ere and reuerte men halfe dead here and there; taking from some their sight, from others their hearing, and leaueth others so torne in their members, as if foure horses had drawne them to pec-cess; and all this through the agitation of the aire into whose substance the saide powder was conuerted. The like acte happened in the Towne of *Malignes*, in the yecere 1546. by the fall of a thun-derbolt, within a great and strong Tower, where-in there was a great quantity of Gunpouder, the which did ouerthrow and reuerte almost the one halfe of the Towne, and killed a great number of persons, whereof I sawe a while since many re-markable tokens.

These examples in my opinion are sufficient to content our Physitian, and to shew him that there is a great similitude betweene the effects of Gun-powder and Thunder. Neuerthelesse, I will not for all that confesse that Gunshot is accom-panied with poyson and fire as the claps of Thun-der: for although they do agree the one with the other, as doth appeare by the former similitudes, it is not in the substance and matter, but in theyr manner of breaking, battering, and dissipating of the obiects which they meete, that is to say, the thunder-claps by the meanes of the fire, and the stone engendred therein, and Gunne-shot by the ayre impetuously agitated, which guiding the bullet, causeth the like tempestuous disaster, that the thunder doth. These things considered, may wee not therefore confesse, that those who haue

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writ-

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written that the Cannon shot and Thunder to haue a great similitude together, haue had reason so to do? Finally, this Physitian hath not taken much paines to prooue that Gun-pouder was not venomous, and that the bullets are without anie burning at all. Neither in like manner to invent and name the Instruments proper for the extraction of all strange bodies, because he hath found them already digested in my booke, with manie other things which he hath written, as euerie one may know by comparing his book with mine. He hath also intriched his Book with many sentences and reasons which he hath collected from an Italian Author, named *Bartholomeus Magius*, Physitian of *Bolognia*, who hath written sufficienly thereof in a Treatise called *De Vulnerum sclopetorum curatione*, although he doth not acknowledg him for his guide. But hauing traduced him almost word for word, hath made it neuerthelesse his owne, and of a Translator, would bee called Author.

A new kind  
of suppurative.

Now let vs come to his goodly practise and new method to cure wounds made by Gun-shot. First of all, hee would haue applyed suppuratiue Medicines, the which neuerthelesse he doeth not vnderstand to be hot and moist, nor of an emplastickie substance; but to the contrary, he ordaineth them to be hot and dry, because (saith hee) that this is not of the nature of an Apostume, wherein there is required no other cure but only to suppurate them. But heere where the woundes are with

with contusion, many and diuers Indications arise from thence ; for so much as the contusion would be concocted and digested, and the wound desiccated. To answer to this, I would send him to learne the nature and quality of suppuratives in *Galen* in the 5. of Simples, and to take all in his way, vntill hee come to the tenth of his Method, which will teach him, that in complicated diseases he ought to consider the cause, the order, and the vrgent.

Moreover, I would willingly aske of him if hee can heale that wound made by gunshot, vnfesse the Contusion be first suppurate ? I think not: and herein I refer my selfe to the iudgment of al good practitioners; and therefore our *Balsicon* and *Oleum Castellorum*, and other such suppurative medicines, are proper to suppurate such woundes as are made by Gun-shot. Secondly, he would haue *Oxyeratum* put into the wound to stanch the fluxe of blood : and if by that means it cannot be stopped, to apply thereon a medicine made of the white of an Egge, Bole Armoniacke, Rose-vinegar and Salt. I leau you to consider whither such like remedies haue power to stay the flux of bloud or no, they being put within the wound. Truely they will rather make it flow more, because that the vinegar is of a gnawing and subtle qualtie, causing paine, defluxion, inflammation, & other euill accidents, as I haue knowne by experiance : and I know no Chirurgeon that hath beene exercised in his Art, will follow such a kinde of practise,

*The Method of curing*

atise, least he finde himselfe deceiued in the end. To this purpose I do remember that I had a *Moor* in cure, who belonged to Mounfieur the Earle of *Roiffy*, who was hurt before *Bologna* by an English man, who gaue him a wound with a Lance thorow the backe: whereupon, to stay the Fluxe of blood, I put into the wound a restrictiue, wherein there was Vinegar insted of another, but presently after he came to me againe, telling me that he thought he had had fire in his arme, which caused me to dresse him anew, and to change the medicinе of his wound, and to apply the saide restrictiue vpon it. I beleue that this Physitian knew not so much, otherwise I esteeme him so honest a man that I thinke he would not haue put it in his Booke for a good restrictiue.

Moreover, hee commendeth aboue all other things his Balme made of the oile of wax & myrr beaten together with the yolke of an Egge, or rather the naturall Balsome which is brought from *Peru*, and saith, that they do consume the superfluous humidity of those wounds, whereby they preuent the happening of any perillous accident. Neuerthelesse, he saith, that they do vnite & consolidate those kinde of wounds, as they do which are incised. Truly it seemeth very strange to mee, to see that any would go about to dresse and cure contused wounds, as simple woundes which demand nothing but vnitio. Ouer and besides, these Balmes canot be proper in wounds made by gunshot, because that by reason of their siccitie they doe

doe hinder suppuration, without the vwhich they cannot be cured. And if they be needfull at all, it is onely after that the contusion is suppurated, & the wound mundified: and then I know not wher we should finde so many extractors of quintessences to extract and prepare so many Balmes as shal be needfull to dresse those souldiers which shalbe hurt in the assault of a Town, or a skirmish in battell? Neither vwhere they shall get mony sufficient to counteruiale the charge thereof.

Let vs come to the rest. He ordaineth that these Balmes should be instilled into the vvounds without Tents, yet afterwards remembiring himselfe, he saith, that it would be very good to put within them a little short one, onely to keepe the Orifice of the wound open. How is it possible that these Balmes and Vnguent should bee conueyed into the bottome of the wound without Tents or Setons, whose vse is principally to carry medicines vnto the bottome of wounds, and to keepe them open to give issue vnto all strange bodies? All good practisers will neuer agree with him in this point, nor those which know what it is to handle such wounds.'

Now there is yet another thing worthy to bee well noted, and that is this: After that he had reproved the Vnguent of Egyptiacum, hee neuer thelesse forgeriting himselfe, commandeth it to be applyed from the beginning vntill the wound bee altogether suppurated, and to be thus vsed. Take (saith he) of Egyptiacum dissolued in a decoction

A pleasant  
anwer, and  
to the pur=   
pose!

## The Method of curing

on made of the tops of VVormiwood, and of Hy-  
pericon, and of the iesser Centaury and Plantan,  
and this to be inieeted into the wound. He descri-  
beth after that another, made of Plantane water,  
and hony of Roses boiled togither vnto the thick-  
nesse of hony, and then scumming of it wel, there-  
wi: shall mixe Egyptiacum in equall parts: & (saith  
he) this vnguent doth suppurate those VVoundes  
which are made by Gun-shot, I leaue the experi-  
mented Chirurgicall Readers to iudge whether  
such remedies be suppuratiue or not. As for me I  
do esteeme them to bee proper to mundifie and  
clense, and not to suppurate. He finally writeth,  
that the wound ought not to be dressed but once  
in foure dayes, and where there shall bee fracture  
of the bones once in eight dayes. He saith more-  
ouer in another place, that it is conuenient to in-  
still euery day ten or twelue drops of baline into  
the wound. Truely this doctrine serueth rather to  
confound the yong Chirurgeon, as not knowing  
Euill pra&ti-  
fers do open what manner of practise hee should followe: for  
fers do open what manner of practise hee should followe: for  
both the  
heauens and  
the earth, who so ever should follow his, I am well assured he  
will open often both the heauens and the earth;  
the heauens to receiue their soules, and the earth  
their bodies.

But wee haue spoken enough of this matter for  
this time, inasmuch as I am well assured, that these  
small cauillations shall nothing at all diminish the  
reputation of my Booke, which is by strangers so  
much esteemed, that they haue translated it into  
their owne mother tongues, therby to haue com-  
mu-

nication therewith. Therefore now we wil bid our Physician farewell, but first would pray him to review and correct his Booke as soone as he could, to the end that the yong Chirurgeon bee no longer retained in those errours which they may apprehend by reading therein : for the shortest folioes are the best.

## C H A P. XVI.

*Another Discourse about the question of the venosity of wounds made by Gunshot.*

Not many moneths since, I chanced to bee in the company of many learned Physitians and expert Chirurgeans, who by way of discourse began to put the venosity of woundes made by Gun-shot; they principally striuing by fие Reasons to proue that venosity may bee conioined with those woundes, not because of the powder, which they confess with mee to be free from venome or poison both in the composition and essence thereof, but by reason of the bullet, within the which poysen may be infused, mixed, and incorporated.

The first reason is, because that Leade is verie rare and spongeous, as the facility of the dissolving and softnesse thereof do shew, and therfore by consequence very easie to receiue the imbibition or infusion of any venomous liquor. I answer that that consequence seemeth to me to bee but of small assurance: for in all artificiall mixtions, as

Reason.

Answer.

is

## The Method of curing

is that whereof we speake, there are two things to be considered; the matter of the bodies which enter into the commixtion; and the forme according to the matter. Such bodies ought eyther to be liquid, or soft, or brittle, and easie to bee diuided into small portions; to the end, that altogether and on euery part, they may meete, ioyne, and vnite. According to the forme they ought to be alliable and computible th'one with the other. This is euidently knowne by the water, which though it be easie to mix with an infinit number of other things, yet neuerthelesse they cannot bee mixed together, by the reason of the antipathy of their formes. So Golde and Siluer are so amorous of Lead, that when they are to bee dissoluued, they are mingled therewith; but Brasse doth flye from Lead as much as gold and siluer do fly from Tin. If therefore Lead and Brasie be melted together, they can by no meanes be mixed together, thogh both are contained vnder Metallicke kinds. How then can there be incorporated with Lead any venomous thing, being different both in forme and kinde?

2 Reason.

Answer.

Let vs come to the second reason. Iron (they say) which is more hard, solid and compact, may neuerthelesse receiue a certaine venomous quality, as we see by impoysoned Arrowes, whereof our Ancestors haue heeretofore vsed; and therefore Lead (by more reason) may receiue the like venomous quality. To answere to that, I confesse that the poyson may well bee receiued on the sur-

perf-

perficies of the Iron, but not in the inwardre substance thereof, by way of commixtion. Now here the question is of incorporation, and not of a simple infusion or Vnction.

Let vs heare the third reason. Although that <sup>3 Reason</sup> Lead (say they) when it is melted, doeth leaue behinde it a kinde of grosse excrement: neuerthelesse, it is not therfore made vnapt to receiue the infusion of any straunge substance. For, even as Steele a mettall amongst all others the most solid, doeth receiue in the woorking thereof, a temper which doeth harden it of a cleane contrarie substance. For answer (I say) that when the temper is giuen to Steele, it is not received within the inward substance thereof; for, if such a thing were necessary for the hardning thereof, it might bee easier done at that time when it is first drawn and melted, then to giue it the Temper, it would better incorporate therewith then afterwards when it is taken and consolidate into a barre. This answer shall likewise serue to confute the fourth reason, by the which (say they) that the iuice of *Napellus* and *Rhododendron* of *Apium risus*, and such like, who of their whole substance, do hurt & corrupt ours beeing mingled with Lead, there may thereby be made such a venomous commixtion; that those wounds which it maketh, must of necessity become venomous. I say to the contrarie, <sup>4 Reason</sup> that the mixture is only of things which may not only be applyed, but also fixed, incorporated, & united the one to the other. Now how can water

R or

## *The Method of curing .*

or any other liquid iuyce only be made to adhere and cleave to Lead which is hard & solid, I meane in that fashion that they may be vnted: the variety heereof may bee iudged better by experiance, then by reason. Cause Lead to be melted within the iuices heretofore recited, or any other that you will choose (hauing first weighed them seuerally) and you shall finde the iust measure of the iuices, and the true waight of the Lead, as they were before: a most euident signe, that no part of the Lead is incorporated with the iuyces, nor the iuyces to haue lost any of their substance.

**S Reason.** The fist reason is this; The Bullet shot out of a Musket against a stone or any bodye of the like hardnesse, is not thereby so much heated, but that it may neuerthelesse be handled in the bare hand though it be taken presently after it was shot: and therefore it is false to affirme, that the poysone infused in the Bullet, may be consumed by the fire of the flaming powder. I answer, you must note that when I said that although the Bullet may be handled, neuerthelesse, the fire would consume the force of the poysone; my meaning was, not the fire of the flaming powder, when the Musket is shot off, but that fire which is vsed to incorporate the molten Lead with the sayde poysone, the which immediately working vpon the poysone, being not yet wholly enwrapped and couered in any straige body, and hauing time and leysure to worke that effect, and not at an instant and altogether, it may if not consume, yet at the least greatly abate the for-

**Answer.**

forces of the said poyson. Those that wil not content themselues with these reasons, let them read *Matthio's us* vpon the Preface of his sixt Booke of *Dieſcorides*. There are (sayth he) of late men so ignorant and foolish, that they do cause to cast a-  
A great A-  
mongſt their Gold and Siluer when it is melted,  
notation. wherewith they intend to make any drinking vef-  
ſelles of Treacle, Methridate, and other Anti-  
dotes, to the end these mettals hauing acquired e-  
uen at the beginning the vertues of the aforesaid  
Antidotes may resist all poisons. But howe ridi-  
culous and foolish this opinion is, they theſelues  
may iudge, if they haue but any mean knowledge  
of naturall things, and principally of Mettals. And  
therefore, there ſhall not neede a more evident  
refutation. Behold the reasons, behold the autho-  
rity, which haue retained in my firſt opinion, that  
wounds made by Gunne-shot are not conioyned  
with any venenoſity.

Heere let not the Reader builde too much on  
the opinion of *Ambroſe Parie*; for I thinke there is  
not any Chirurgean that will deny but that a bul-  
let may bee poyſoned, notwithstanding the for-  
mer reasons, which I leaue to be confide-  
red by the iudicious and experi-  
mented Chirur-  
gean.

*The Method of curing*

## CHAP. XVII.

*The differences betweene such wounds which are  
made by arrowes, and those made  
by Gunshot.*

These wounds which are made by Arrowes, Crosse-bow shot, or such like Instruments, do differ in two things from those which are made by Gunshot and other fierie Engines. For somtimes they are found without Contusion, which never hapneth to wounds made by Gunne-shot. Often-times also they are empoysoned, and according to these two differences, their curations ought to be diuersified. Now let vs consider the differences of Arrowes and Darts, because that consideration serueth greatly vnto the knowledge and curation of the said wounds.

## CHAP. XVIII.

*Of the differences of arrowes and Darts.*

Arrowes and Dartes doe differ in matter, in forme or figure, in magnitude, in number, in manner, and faculty or vertue. Their differences in matter is, some of them are of Wood, others of Canes or Reeds: some of them haue their extremities or heads garnished with Iron, Tinne, Lead, Brasse, Horne, Glasse, or of bone, and others not. Their differences in forme are, some of them are round, others angular, others sharpe, others

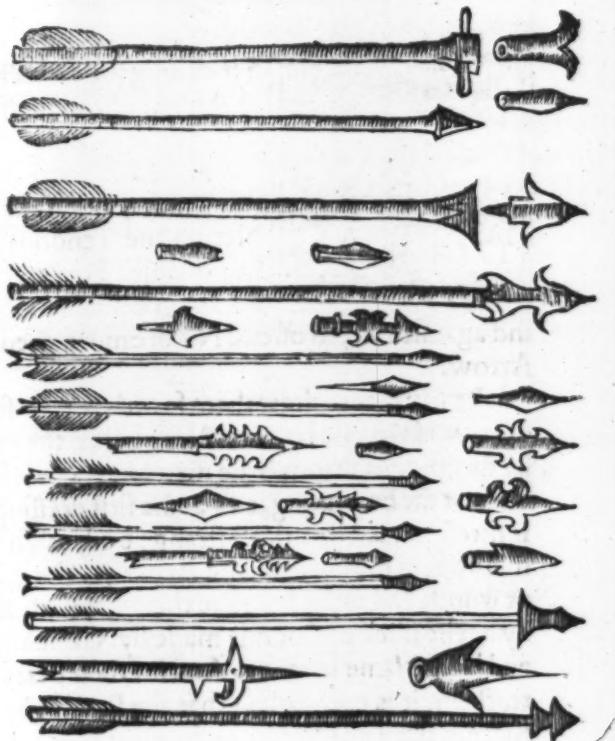
thers barbed; some of them hauing their pointes turned backwardes, and some haue it diuided into two parts: some are made broad in their heads and cutting like a knife, and in many other forms and fashions inumerable. As for their magnitude, some of their heads are of three fingers in length; others of a smaller size. Their number causeth a difference herein; because that some are simple, hauing but one point onely; others are composed into two or many. Also in them their manner is to be confidered; for some of them haue the Iron or head inserted within the woode of the Arrow, and of others the Arrow is inserted into the head. Some headeſ are fixed and nayled vnto the shaft, and others not; but haue so little hold, that in drawing them foorth, their heads remayne behinde in the wounds, whereby they become more daungerous. Their faculty maketh them also to differ in this, because that some are (as hath bene ſaide) empoyſoned, and others not. Such are the ſpeciall and proper diſſerences of Arrowes and Darts: according to the which, the diſpoſitions which they leauē behinde them, doeth diuerſifie their curation. Thou mayſt beholde by this following figure the aforesaid diſſerences.

CHAP. XIX.  
*Of the differences of the wounded partes.*

These differences exposed. Now wee must consequently speak of the diuersity of the affected parts, which are either fleshy or bony; som of them are neere the ioynts, others within them. Some with a great Flux of bloode, and fracture of the bones, others not. Some of them in the prin-call members, or in parts seruинг them; some are deepe, others but superficiall. And if in anie of these woundes there appeare any manifest signes of death, you ought to make a true & sure iudgement thereof, before you meddle there-with, to the end that there be no occasion giuen vnto the ignorant people to speake euill of our Art. Now, to leaue the Arrow in the body, would cause vne-  
Necessarie  
 iudgement  
 to auoyde  
 scandall.  
 steemed vnpittifull and inhumane, and by draw-  
 ing it forth the Patient may peraduenture escape.

For, as wee haue saide, it is better to attempt  
 a doubtful remedy, then to let the Pa-  
 tient dyc, without any suc-  
 cour at all.

CHAP.



CHAP.XX.  
*Of the extraction of Arrowes.*

Touching the extraction of Arrowes, you ought to auoyde the incising, dilacerating, and breaking of the Veines, and Arteries, Nerues and Tendons, if it be possible. For it would be an ignominious thing and against Art, to offend Nature more then the Arrow.

The manner to draw them foorth is two-fold; the one of them is by extraction, and the other by thrusting it through the member. Therefore, euen at the beginning, and at the first dressing, it is fittest to take foorth all strange bodyes (if anie there be) as the heads of the Arrowes, the shaste or wood, and other such like things, as hath alreadie beeene saide of wounds made by Gunne shot, and by the same meanes. And for their better extraction, it is conuenient that the Patient bee situate in the same figure and posture, as at that time when he was hurt, because of the Reasons aforeside (if it be possible) and then to vse instruments proper to that effect: as principally this following, which hath an hollow quill or pipe diuided in the middle, the outward e parte toothed; into the which is inserted a rod, like vnto the *Tire-fond*

## *Wounds made by Gun-shot.*

121

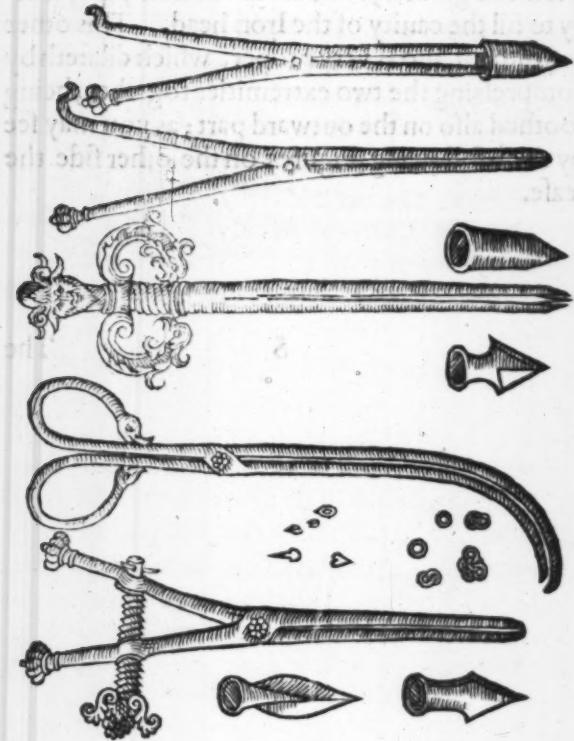
fond of Gun-shot, as hath beene figured heere before, excepting onely that this is not made with a Scrue in the extreamity or end thereof. Also it is made greater, to dilate the hollow pipe, thereby to fill the cauity of the Iron head. This other Instrument also is very proper, which dilateth by compressing the two extremities together, being toothed also on the outward part; as you may see by these following Figures on the other side the leafe.



S

The

## *The Method of curing*



The first Instrument is opened by meanes of a Vice, which is inserted within the hollowe Pipe thereof.

The second Instrument doeth dilate, by compressing the two ends together.

The signes whereby you may know where the Iron head is, that if you feele with your hande on that part where it is, you shall perceiue an asperity and inequality. Also the flesh wil appeare confus'd, liuid, and blacke, and the Patient will feele an heauiness and continuall paine in the wounded part.

The other two Instruments are called Tenuclles, with a Vice, together with a Crowes bill: and is very commodious to draw forth the heads of Arrowes, and to extract foorth Maile and other smaller bodies.

This Instrument vnderneath, is another small Hooke to draw forth Maile, or any other strange body, that it cannot meete with: which also may serue thy turne for the same effect, in the woundes of Gun-shor.



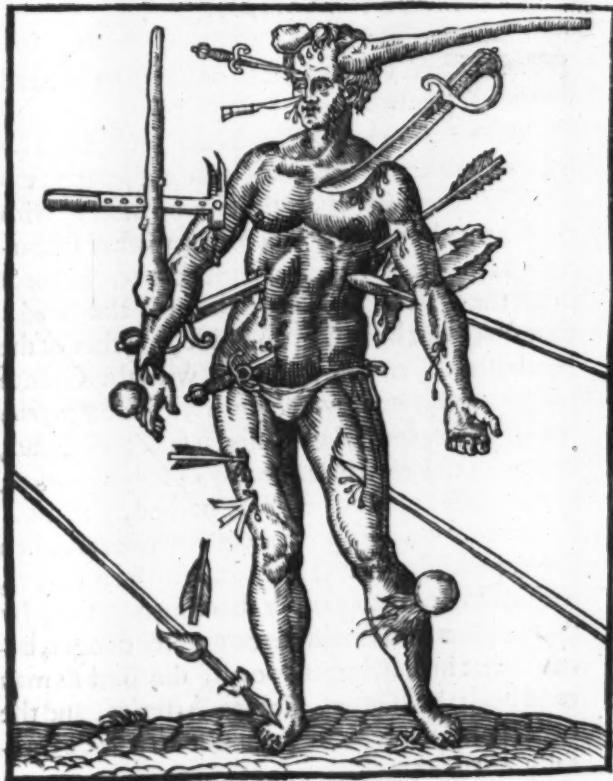
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But

## *The Method of curing*

But if it come to passe that the head bee barbed, whether it be of an Arrow, Pike, Dart, or Lance, and shall abide in any part of the bodye. As for example, in the Thighe or Legge, together with some portion of the wood broken therein, in that case the Chirurgeon shall cut away the wood or shaft as close as hee can, with incising or cutting Tenacles. Afterwardes he may draw foorth the head with Tenacles that are toothed, as you may see by the figure before going.

*Hippocrates* in the fifte of his Epidemies saith, That he hath drawne forth the head of an Arrow sixe yeares after it was shot, it being lodged nere vnto the Groine.



## CHAP. XXI.

*How you ought to proceede in drawing forth  
broken Arrowes.*

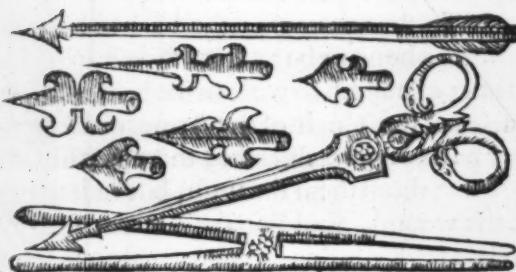


VT if it come to passe, that the head is broken, in such sort that it cannot by any meanes bee apprehended by the aforesaide Tenacles, let it be extacted then (if it be possible) with the Cranes bill, or Crowes bill, or other Instruments, that haue beene described heere before: but if the shaft be broken off so neere the heade, that there can bee taken no holde, neyther of the head thereof, nor of the shaft, with the Cranes bill, then let it be drawne foorth with the *Tirefond* of Gun-shot, for if it will insert it selfe into Lead, by a greater reason it may easilly enter into wood. In like manner, if the head bee barbed, as most commonly your English mens Arrowes are, then if it be possible, thrust it thorough the member, with an Instrument proper thereunto. For, by that meanes you shall auoyde greater danger, because that in drawing it foorth, the Barbils may rend both the Nerves, Veines, Arteries, and the other parts, the which you ought to auoide carefully. And therefore it is better to make a counter-Orifice on the other part, iust oueragainst the wound, and so to thrust it cleane through. For, it may be supposed, that there is but a little thickenesse to incise; so by this meanes, and with lesse dan-

danger the wounde will haue a double yssue; the one on the former part, and the other on the hinder part; and will therefore heale sooner, because you may apply your medicines both on the one side, and on the other, and it will also mundifie better. To the contrary, if the barbed head happen vpon a bone, or be inserted therein, which oftentimes commeth to passe in the bottome of the Muscles of the Thigh, of the Arme, or Legge, or other parts of great distance, there it is not conuenient to thrust them through, but rather to dilate the wound, auoiding the Nerues and great vessels, as the good and expert Anatomical Chirurgeon ought to do, and then gently and orderly to apply therein a Dilatory hollow in the inward part thereof, and so to place it, that it may apprehend the two Barbils of the Iron head: then with the Cranes bill it may be held steddy, and so draw them forth all three together, as this figure following sheweth thee.

## The Method of curing

A Dilatory which hath a certaine cavity in the inward part thereof, with the Cranes bill holding a barbed head.



### CHAP. XXII.

What ought to be done when the Arrow is inserted into the bone.



Ow, if it happen that the Arrow is so inserted and fixed in the Bone, that it cannot be taken foorth by thrusting it thorough the member, but by drawing it foorth by the same way that it entered in, you ought then to moue and stirre it too & fro discreetly if it sticke fast in the bone, wherein an especially care ought to be taken that you breake not the Arrowe, and so leaue some part thereof sticking in the bone; from whence might ensue many dangerous accidents. This operation may be done by the Instrument named the Crowes-bill, or by others heere before figured presently after

after the extraction of the Arrowe. Suffer the wound to bleed sufficiently, taking your Indication from the strength or vertue of the Patient, to the end that the part may thereby bee discharged, and lesse molested with inflammation, putrefaction, and other evill accidents. The extraction being done, at the first dressing, if the wound be simple, thou shalt handle it as a simple wound: but if it bee with complication, thou shalt then cure them according as you shall finde the dispositions complicated, to appease the paine, thou mayest to thy great profite apply *Oleum Castellorum* of our description heere before declared, & to overcome other accidents which may happen in thy cure, thou shalt haue recourse vnto our former Bookes of woundes in generall, and of those made by Gun-shot.

Gun-shot.

**CHAP.**

## C H A P. XXIII.

*Of venomous or empoysoned wounds.*

NOW there remaineth to vnderstand and consider, that these woundes are sometimes empoysoned (as we haue saide) and that it proceedeth from the primitiue cause of the Arrowes so prepared by the enemy. This may easily be knowne both by the report of the hurt person, saying, that he feeleth a great and pricking paine as if hee had bene stung with Bees (especially if the poison were hot, which is most vsed in that case) and also by the deth of the wounded part, which presently after becommeth pale and liuide, with a certaine appearance of mortification: wherunto also there doth happen many other greeves, and greater accidents, which are not accustomed to happen in all other wounds, wherein there is not any venosity. Wherefore at the beginning (after that you haue extracted foorth all the strange bodies, if any there be) you ought to make diuers deepe scarifications all about the wound, and to set ventoses thereon with a great flame, thereby to make attraction and euacuation of the vitulent matter. In like manner, the sayd attraction may be done, by causing the wound to bee sucked by another man, hauing in the meane time a little Oyle in his mouth, wherein you must haue a care that hee haue not any Vlcer therein, for feare lest that the poyson so sucked and attracted cleave not thereunto

unto. Also attraction may bee made by the application of Vnguents, Cataplasmes, Employsters, Vesiccatories, Cauteries, and other things, which shall be declared heereafter in our particular Booke intreating of the bitings and stingings of venomous Beasts.

*FINIS.**Faults escaped.*

Page 9.line 17. for Sir, read Saint. p. 15.l.20. for practices r. prurities. p. 52.l.22. for induring, read inducing. p. 55.l.11. for Escharotick, r. Escharotick. p. ibid.l.16. for indured, r. induced. p. 59.l. 30. for cooling r. rowling. pag. 60.l.21.r. the yolke of Egges. p. 75.l.23. for naucotick r. narcotick. p. 85. l.3. for staples r. Stuphes. p. 90.l.15. for Lerine, r. lexine. p. 104.l.19. for eschiomened r. estiomened.



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